

CONSTRUCTION PLANS

PV GROUND MOUNT PHOTOVOLTAIC SYSTEM

5,804.88 KW-DC

SHUTESBURY, MA 01072

Conti
 2045 LINCOLN HWY
 EDISON, NJ 08817

SOLAR INTEGRATOR:

CONTI ENTERPRISES, INC
 2045 LINCOLN HWY,
 EDISON, NJ 08817
 P: 732-520-5000
 CONTACT: SEAN HARRINGTON

PROPERTY INFO:

PRATT CORNER ROAD,
 SHUTESBURY,
 MASSACHUSETTS 01072

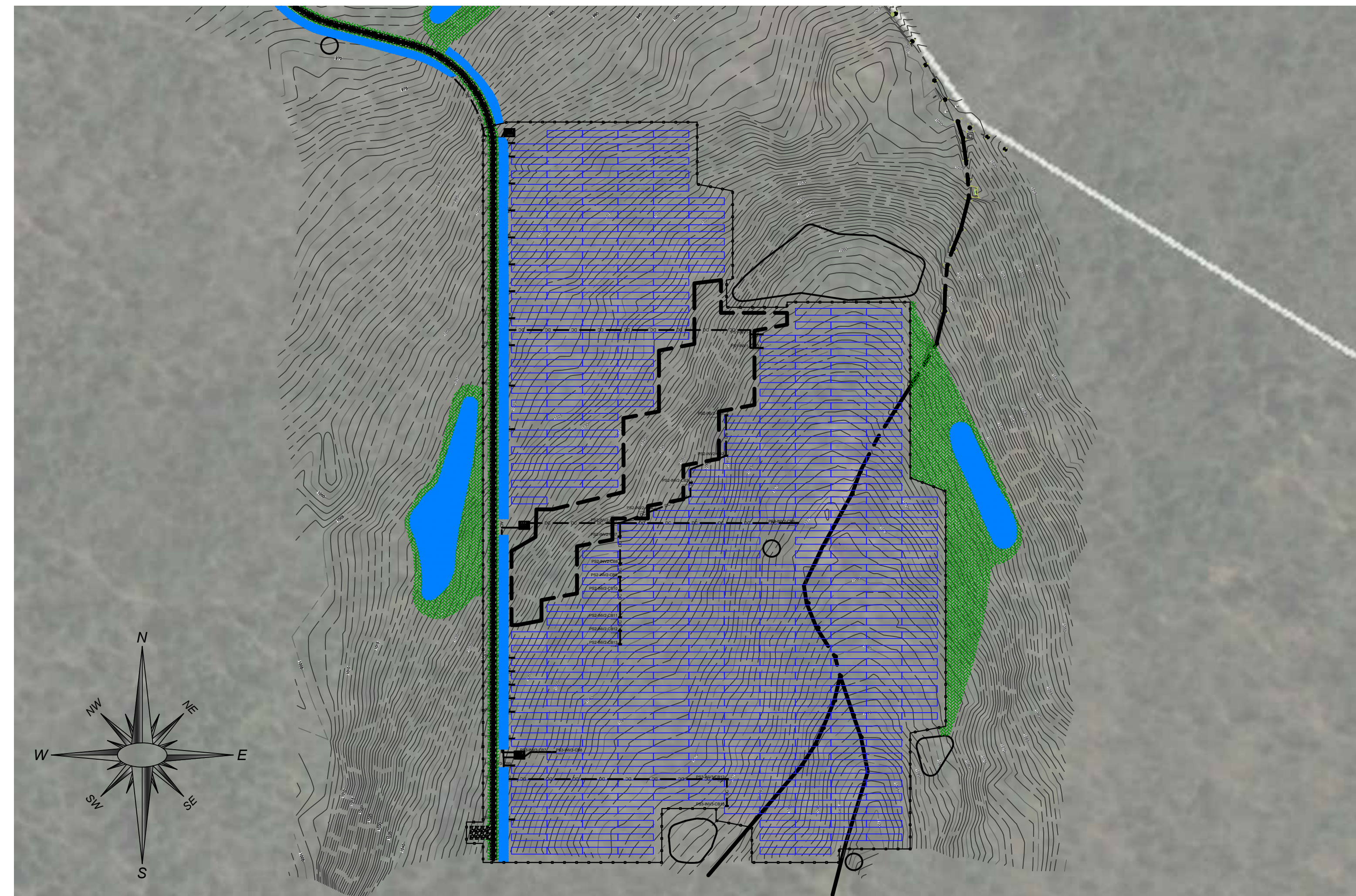
ENGINEERING FIRMS:

ENGINEER OF RECORD:
 POWER ENGINEERS LLC
 37 FOX DEN ROAD,
 KINGSTON, MA 02364
 P: 508-612-0382
 CONTACT: DAVE COLOMBO, P.E. #40426

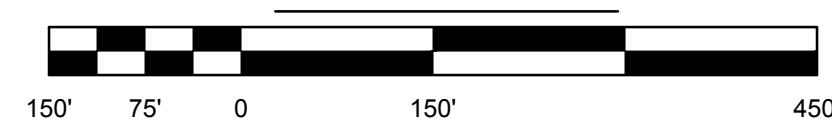
SYSTEM OWNER:

LSDP 12, LLC
 180 NORTH STETSON AVENUE,
 35TH FLOOR, SUITE 3500
 CHICAGO, IL 60601
 P: 312-576-5678
 CONTACT: MARNIN LBOVITS

RBI SOLAR
 5513 VINE STREET,
 CINCINNATI, OHIO 45217



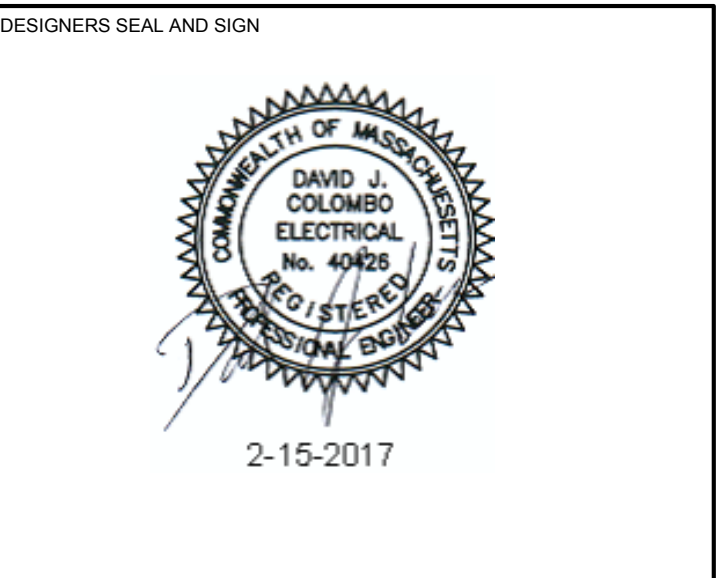
SITE PLAN



CONTI CIVIL & ELECTRICAL DRAWING LIST

SHEET #	SHEET NAME	REV.	DATE
T-100	TITLE SHEET	1	02/13/2017
G-001	GENERAL NOTES SHEET 1	0	12/05/2016
G-002	GENERAL NOTES SHEET 2	0	12/05/2016
C-001	OVERALL SITE PLAN	0	02/13/2017
C-100	FENCE AND GATES DETAILS	0	12/05/2016
E-001	PV SITE PLAN	1	02/13/2017
E-100	AC ONE LINE DIAGRAM SHEET 1	0	12/05/2016
E-101	AC ONE LINE DIAGRAM SHEET 2	0	12/05/2016
E-110	DC ONE LINE DIAGRAM	0	12/05/2016
E-111	DC WIRING SCHEDULE SHEET 1	0	12/05/2016
E-112	DC WIRING SCHEDULE SHEET 2	0	12/05/2016
E-200	OVERALL DC FEEDER PLAN	1	02/13/2017
E-201	DC FEEDER PLAN SHEET 1	0	12/05/2016
E-202	DC FEEDER PLAN SHEET 2	0	12/05/2016
E-203	DC FEEDER PLAN SHEET 3	0	12/05/2016
E-204	DC FEEDER PLAN SHEET 4	0	12/05/2016
E-210	OVERALL DC STRING WIRING PLAN	1	02/13/2017
E-211	DC STRING WIRING SHEET 1	0	12/05/2016
E-212	DC STRING WIRING SHEET 2	0	12/05/2016
E-213	DC STRING WIRING SHEET 3	0	12/05/2016
E-214	DC STRING WIRING SHEET 4	0	12/05/2016
E-300	GROUNDING DETAILS SHEET 1	0	12/05/2016
E-301	GROUNDING DETAILS SHEET 2	0	12/05/2016
E-302	GROUNDING DETAILS SHEET 3	0	12/05/2016
E-400	EQUIPMENT PAD DETAIL	0	12/05/2016
E-401	MISCELLANEOUS DETAILS SHEET 1	0	12/05/2016
E-402	MISCELLANEOUS DETAILS SHEET 2	0	12/05/2016
E-403	MISCELLANEOUS DETAILS SHEET 3	0	12/05/2016
E-404	MISCELLANEOUS DETAILS SHEET 4	0	12/05/2016
E-405	MISCELLANEOUS DETAILS SHEET 5	0	12/05/2016
E-500	WARNING LABELS SHEET 1	0	12/05/2016
E-501	WARNING LABELS SHEET 2	0	12/05/2016
E-502	WARNING LABELS SHEET 3	0	12/05/2016

Rev	Description	Date	Dwn	Chk
1	REVISED ROAD PATH	02/13/2017	EP	EP
0	PERMIT SET	12/05/2016	EP	EP



SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS

SHUTESBURY GROUND MOUNT

PRATT CORNER RD AND REED RD,
 SHUTESBURY, MA 01072

SHEET TITLE

TITLE SHEET

ENGINEER: EDGAR PUESAN	DRAWN BY: EDGAR PUESAN
PROJECT NO. 1620400	SHEET NO. T-100
CREATION DATE 10/04/2016	
SCALE AS NOTED	

1.9 IDENTIFICATION

- A. WIRE DESIGNATION MARKERS: PROVIDE FUNGUS RESISTANT, VINYL OR VINYL-CLOTH CONDUCTOR MARKERS IN OUTLET, JUNCTION AND PULL BOXES INDICATING WIRE USAGE (I.E SWITCH LEG, POWER FEED, TRAVELERS, ETC). THIS IS IN ADDITION TO WIRE CIRCUIT IDENTIFICATION REQUIREMENTS AND IS INTENDED TO CLARIFY WIRING WITHIN BOXES.
- B. CIRCUIT IDENTIFICATION: PROVIDE WIRE MARKERS ON EACH CONDUCTOR IN PANELBOARD GUTTERS, PULL BOXES, OUTLET AND JUNCTION BOXES, AND AT LOAD CONNECTION. IDENTIFY BRANCH CIRCUIT OR FEEDER NUMBER FOR POWER AND LIGHTING CIRCUITS, AND WIRE DESIGNATION INDICATED ON EQUIPMENT MANUFACTURER'S SHOP DRAWING FOR CONTROL WIRING. MAINTAIN CONSISTENCY WITH SIMILAR PREVIOUSLY ESTABLISHED IDENTIFICATION SCHEMES FOR THE FACILITY'S ELECTRICAL INSTALLATIONS.

1.10 SITE CONDITIONS:

- A. THE 5.99MW PHOTOVOLTAIC SYSTEM WILL BE INSTALLED IN SHUTESBURY, MA.
- B. PHOTOVOLTAIC ARRAYS WILL BE INSTALLED ON THE POST DRIVEN GROUND MOUNT ARRAY AS IDENTIFIED IN THE DRAWINGS.
- C. THE ASHRAE EXTREME ANNUAL DRY BULB MINIMUM MEAN TEMPERATURE AT THE SITE IS -20 DEG CELSIUS.
- D. THE ASHRAE 2% DRY BULB HIGH AMBIENT TEMPERATURE AT THE SITE IS 29 DEG CELSIUS.

1.11 PHOTOVOLTAIC CIRCUIT DESIGN:

- E. THE STRING CONFIGURATIONS TAKE INTO CONSIDERATION THE RESPECTIVE MANUFACTURERS SPECIFICATIONS FOR THE TEMPERATURE CO-EFFICIENT FOR VOLTAGE FOR THE TRINA 340W MODULES . THE MAXIMUM NUMBER OF MODULE PER STRING ARE SPECIFIED ON THE DC ONE-LINE DIAGRAM. THE RECORD LOW AMBIENT TEMPERATURE AT THE SITE IS -20DEG C. THE TEMPERATURE DIFFERENTIAL IS 45 °C.
- F. ALL THE DC CIRCUIT CONNECTIONS HAVE BEEN DESIGNED TO HAVE A VOLTAGE DROP OF LESS THAN 2.5% AT STANDARD TEST CONDITIONS. AC CIRCUITS CONNECTIONS HAVE A VOLTAGE DROP OF LESS THAN 0.5%
- G. PHOTOVOLTAIC ARRAY DC WIRE SIZING IS BASED ON REQUIREMENTS OF THE NEC SEC. 690.8. UNDERGROUND CONDUITS WILL BE POSITIONED IN ACCORDANCE TO NEC TABLE 300.50. THE AMPACITIES OF THE CONDUCTORS HAVE BEEN CALCULATED USING APPROPRIATE CORRECTION FACTORS FROM NEC TABLES 310.15(B)(16) AND 310.15(B)(2)(A).
- H. PHOTOVOLTAIC SOURCE AND OUTPUT CIRCUITS ARE PROTECTED BY OVER CURRENT PROTECTION IN ACCORDANCE WITH NEC SEC 690.9.
- I. DC SOURCE AND OUTPUT CIRCUITS ARE PROTECTED BY A LISTED DC ARC-FAULT CIRCUIT INTERRUPTER PER NEC SEC 690.11.
- J. PHOTOVOLTAIC INVERTERS ARE PROVIDED WITH GROUND FAULT PROTECTION AND INTERRUPTION ABILITIES IN ACCORDANCE WITH NEC SEC. 690.5.
- K. PHOTOVOLTAIC ARRAYS HAVE BEEN PROVIDED WITH DISCONNECTING MEANS IN ACCORDANCE WITH NEC SEC 690.13.
- L. PHOTOVOLTAIC ARRAYS HAVE A COMMON DC AND AC GROUNDING ELECTRODE SYSTEM COMPLYING WITH THE REQUIREMENTS OF NEC SEC 690.47.
- M. ALL PHOTOVOLTAIC EQUIPMENT INCLUDING PV MODULES, COMBINER BOXES, DISCONNECTS, INVERTERS, AC CIRCUIT BREAKERS WILL BE IDENTIFIED AND INFORMATION ON MAXIMUM SYSTEM VOLTAGE, CURRENT, OPERATING VOLTAGE AND CURRENT WILL BE NOTED WITH A WARNING LABEL ON A CLEARLY VISIBLE LOCATION.
- N. ALL PHOTOVOLTAIC DC CONDUCTORS SHALL BE 1000V PV WIRE "SUNLIGHT RESISTANT" MARKED FOR EXPOSED WIRING. 1000V PV WIRE, DIRECT BURIAL FOR DIRECT BURIED WIRE, 1000V XLPE INSULATION /RHW-2 FOR ALL WIRING IN CONDUIT. A/C RATING OF AC EQUIPMENTS SHALL MATCH EXISTING EQUIPMENTS.
- O. ALL EQUIPMENT SHALL BE RATED FOR A MAXIMUM SYSTEM VOLTAGE OF 1000V AND ALL GROUND-MOUNT TERMINALS WILL BE RATED FOR STRANDED WIRES AND HAVE A 90°C TEMPERATURE RATING.
- P. CONDUITS HAVE BEEN SIZED TO MEET THE CONDUIT FILL REQUIREMENTS OF NEC. CHAPTER 9 TABLE 1.

1.12 CB LABELS, DC DISC LABELS, INV LABELS, WARNING LABELS:

- A. ALL LABELS SHALL BE OF WEATHERPROOF AND DURABLE MATERIAL.
- B. TEXT ON LABELS SHALL BE OF ARIAL FONT - IT SHALL BE LEGIBLE AND CLEAR.
- C. THE TONE OF THE BACKGROUND COLOR SHALL BE BRIGHT TO ATTRACT ATTENTION. YELLOW FOR CAUTION LABELS, RED FOR DANGER LABELS AND ORANGE FOR WARNING LABELS.
- D. LABELS SHALL BE SECURELY FASTENED TO SPECIFIED LOCATIONS BY USING A WEATHER PROOF AND DURABLE ADHESIVE SUITABLE FOR THE MATERIAL OF THE LABEL AND THE LOCATION. THE LABELS SHALL HAVE A MINIMUM LIFE SPAN WARRANTY OF 5 YEARS.
- E. THE LABELS SHALL BE POSTED AT THE LOCATIONS SPECIFIED. IF FOR REASONS OF REDUCED ACCESS OR SPACE, THE LABELS SHALL BE POSTED AT THE CLOSEST LOCATION THAT BEST SERVES THE INTENT OF THE LABEL. NOTIFY THE ENGINEER/SUPERVISOR IN SUCH A CASE BEFORE ATTACHING.

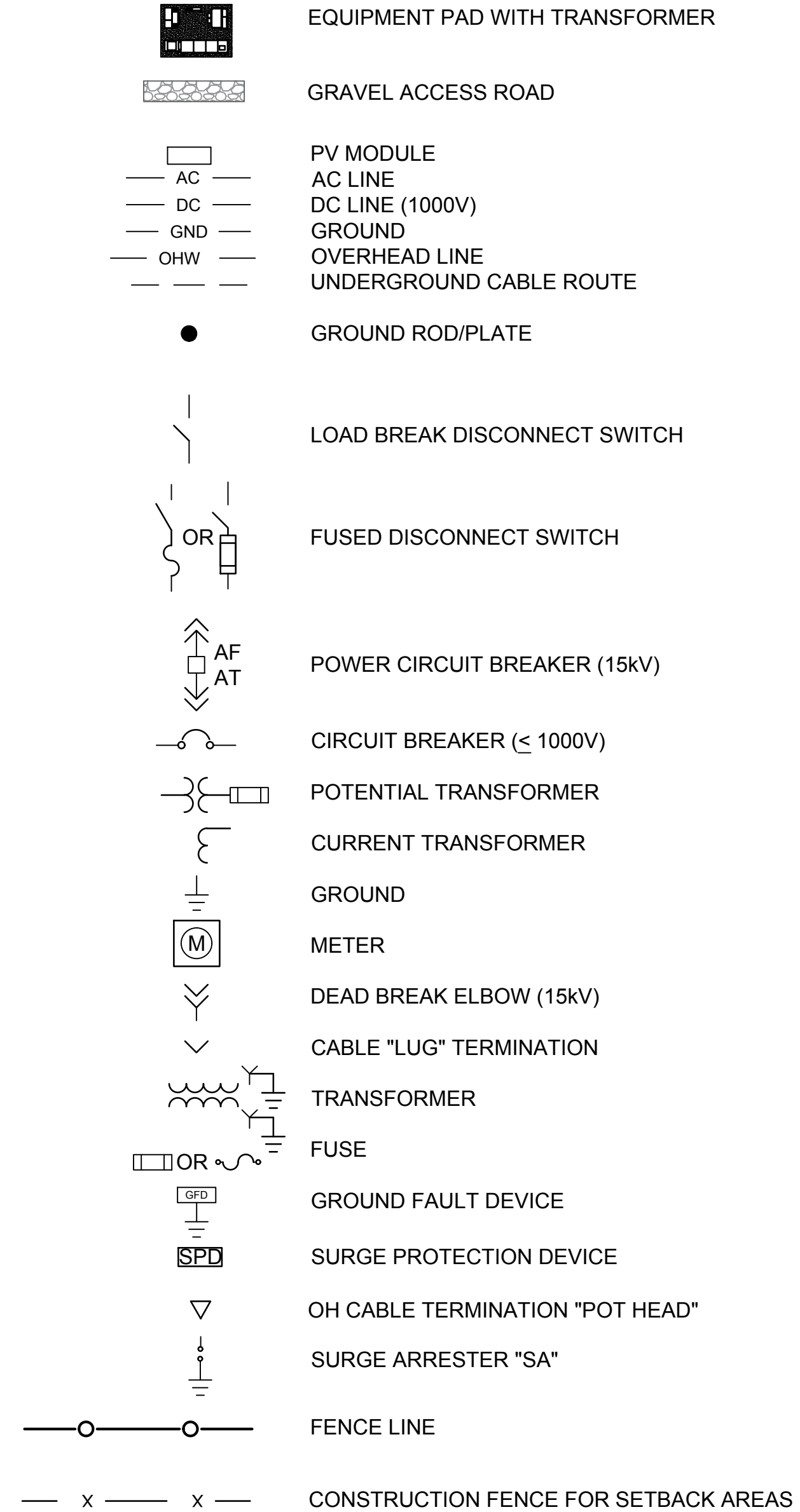
1.13 LIST OF SUBMITTALS

- A. 15KV WIRE
- B. AC WIRING AND ACCESSORIES
- C. DC WIRING AND ACCESSORIES
- D. ALL CONDUIT (PVC)
- E. DATA COMMUNICATIONS CABLE
- F. DATA MONITORING, ETC MOUNTING ON THE EQUIPMENT PAD (WITH UNISTRUT)
- G. LABEL MATERIAL
- H. MV CABLE HI-POT TEST
- I. 15KV LIGHTNING ARRESTORS
- J. GROUNDING CONDUCTOR, PLATE, RODS, FITTINGS
- K. GROUND RESISTIVITY TEST

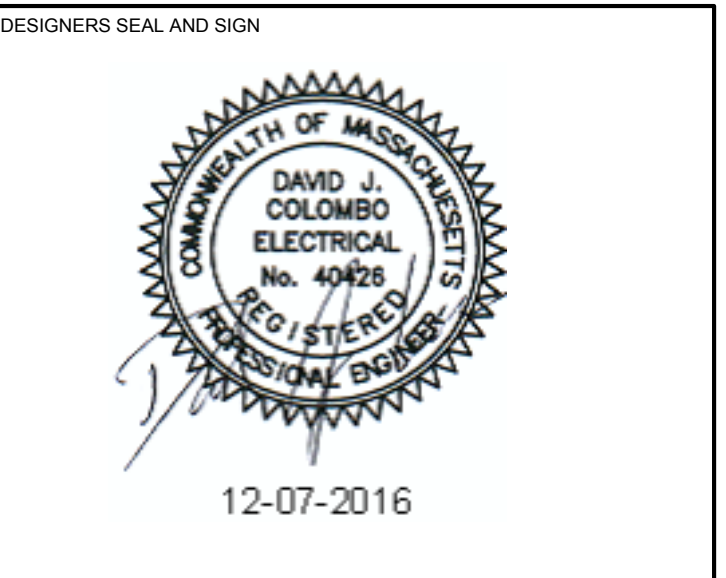
1.14 ABBREVIATIONS

A	AMPERES (AMP)
AC	ALTERNATING CURRENT
AF	AMP FRAME
AT	AMP TRIP
BIL	BASIC IMPULSE LEVEL
CB	COMBINER BOX
COMM	COMMUNICATIONS
CT	CURRENT TRANSFORMER
CPT	CONTROL POWER TRANSFORMER
CU	COPPER
DC	DIRECT CURRENT
EMT	ELECTRICAL METALIC TUBING
EPR	ETHYLENE PROPYLENE RUBBER
G/GND	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFD	GROUND FAULT PROTECTION
Inom	NOMINAL CURRENT (AMPS)
KCMIL	THOUSAND CIRCULAR MILS
KV	THOUSAND VOLT
KVA	THOUSAND VOLT-AMPS
KW	THOUSAND WATT
LFMC	LIQUID TIGHT FLEXIBLE METALLIC CONDUIT
MPPT	MAXIMUM POWER POINT
MV	MEDIUM VOLTAGE
NEC	NATIONAL ELECTRIC CODE
NESC	NATIONAL ELECTRIC SAFETY CODE
PCC	POINT OF COMMON COUPLING
PT	POTENTIAL (VOLTAGE) TRANSFORMER
PV	POTENTIAL (VOLTAGE) TRANSFORMER
PVC	POLYVINYL CHLORIDE
RMC	RIGID METAL CONDUIT
SA	SURGE ARRESTER
SCH	SCHEDULE
SPD	SURGE PROTECTION DEVICE
UL	UNDERWRITER'S LAB
V	VOLTAGE (VOLT)
Z	IMPEDANCE

1.15 SYMBOLS:



Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP



SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS
 SHUTESBURY GROUND MOUNT
 PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

SHEET TITLE
 GENERAL NOTES SHEET 2

ENGINEER: EDGAR PUESAN	DRAWN BY: EDGAR PUESAN
PROJECT NO. 1620400	SHEET NO. G-002
CREATION DATE 10/04/2016	
SCALE AS NOTED	

NOTES:

5,891.52kW DC GROUND MOUNTED PV SYSTEM:

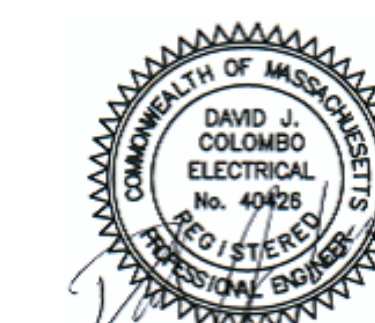
17,328 TRINA 340W MODULES.

912 STRINGS TOTAL,
19 MODULES PER STRING,
20° TILT
180° AZIMUTH

(3) POWER ELECTRONICS 1500kW INVERTERS

Rev	Description	Date	Dwn	Chk
1	REVISED ROAD PATH	02/13/2017	EP	EP
0	PERMIT SET	12/05/2016	EP	EP

DESIGNERS SEAL AND SIGN



2-15-2017

SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS

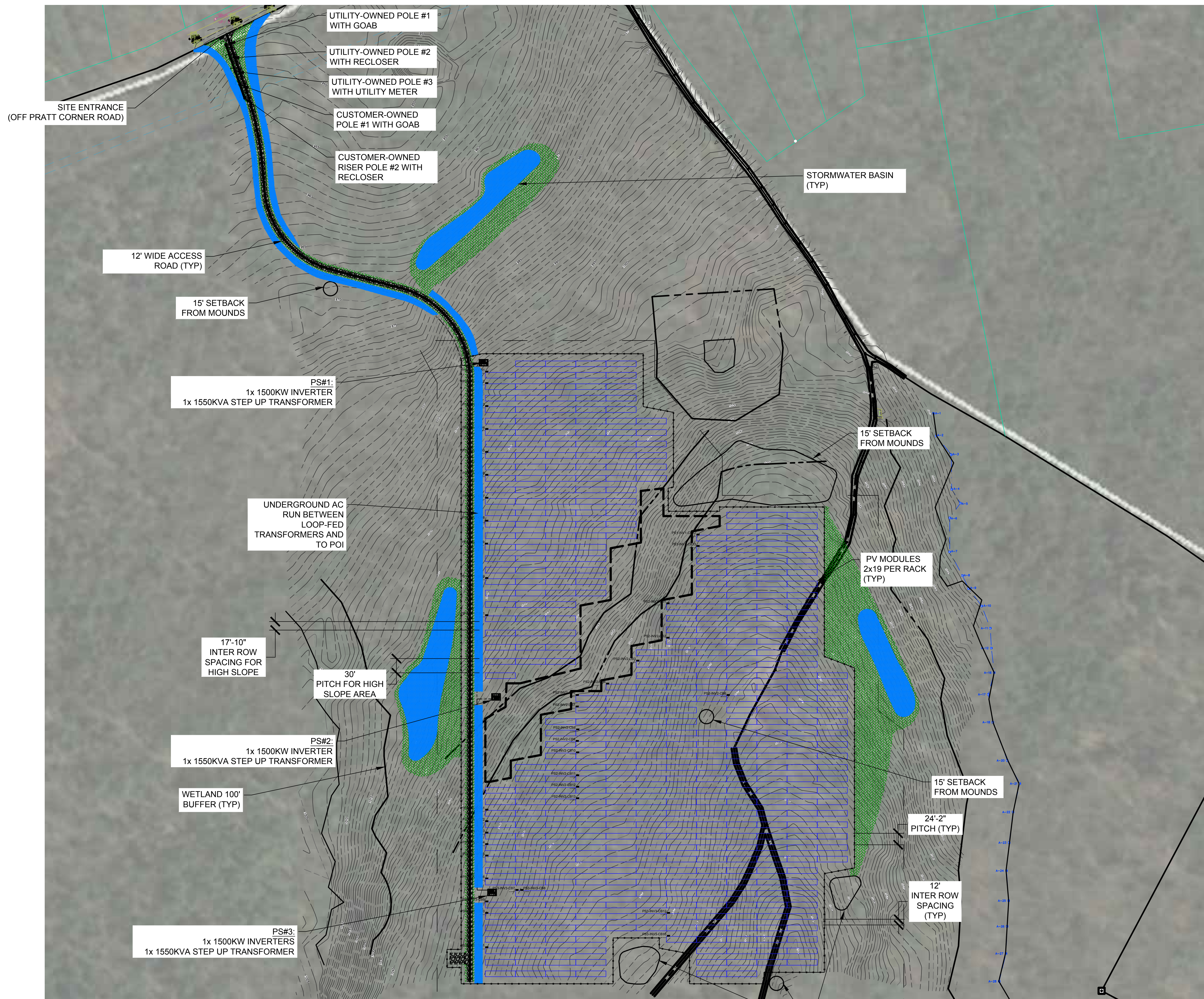
SHUTESBURY GROUND MOUNT

PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

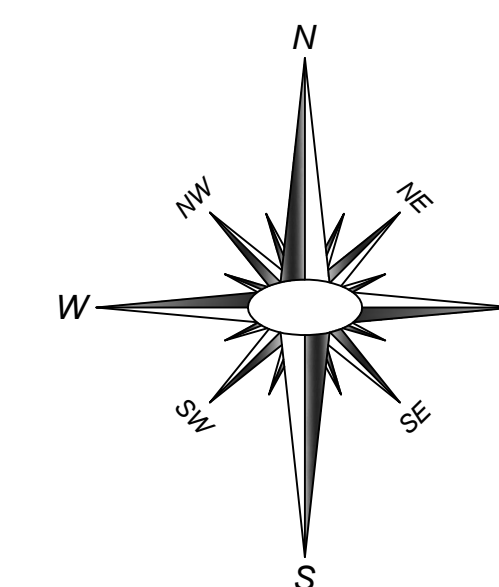
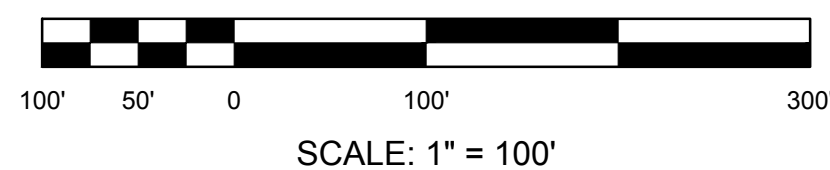
SHEET TITLE

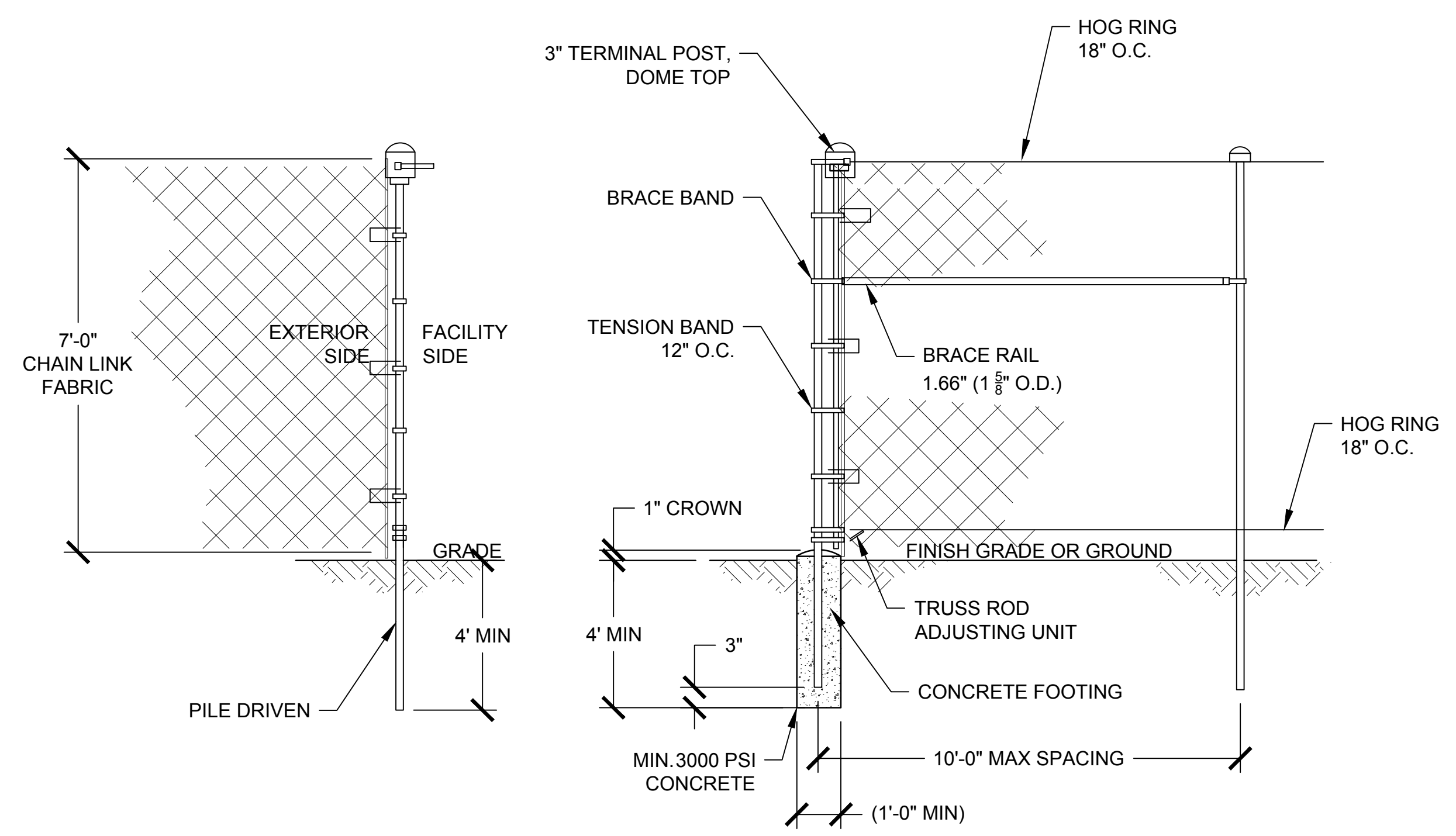
OVERALL SITE PLAN

ENGINEER: EDGAR PUESAN	DRAWN BY: EDGAR PUESAN
PROJECT NO. 1620400	SHEET NO. C-001
CREATION DATE 10/04/2016	
SCALE AS NOTED	



1 OVERALL SITE PLAN
C-001



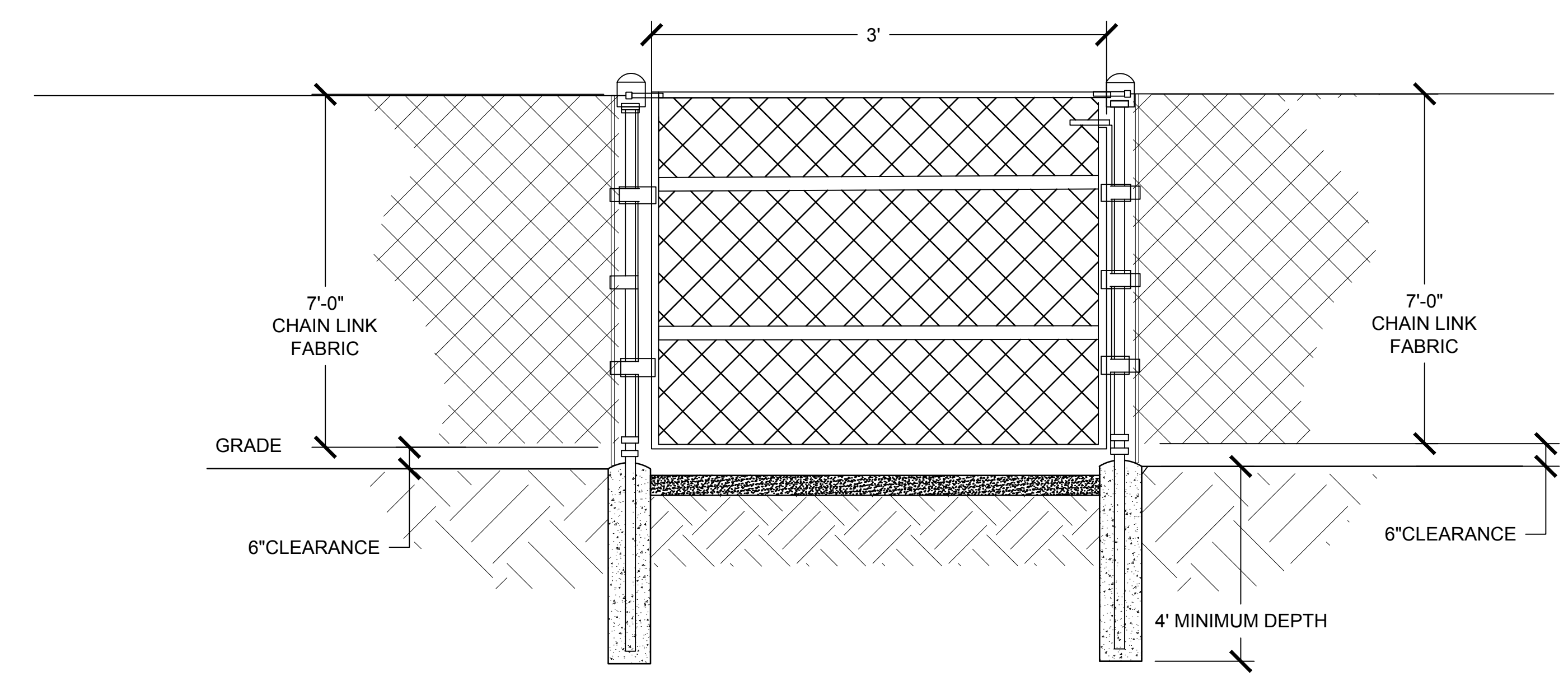


INTERMEDIATE POST

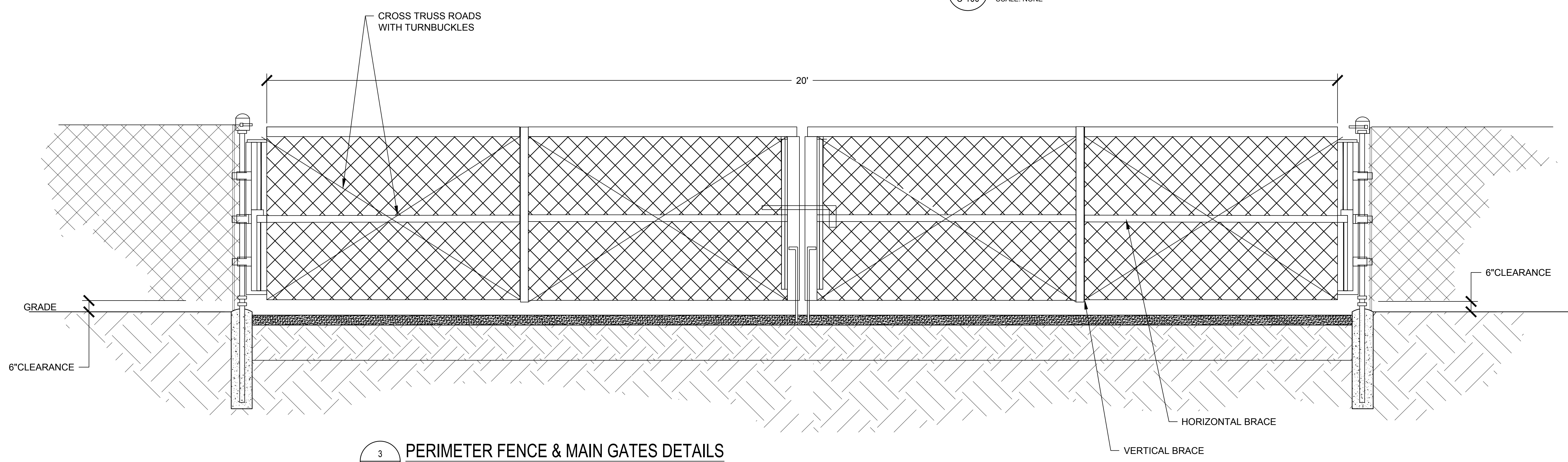
CORNER POST

1 PERIMETER FENCE
 C-100 SCALE: NONE

- NOTES:
- 7' TALL FENCE REQUIRED PER NEC TO CLASSIFY SITE AS ONLY ACCESSIBLE TO QUALIFIED INDIVIDUALS.
 - FENCING SHALL BE CONSTRUCTED OF CHAIN LINK FENCE.
 - THE FENCE SHALL BE OF A 2" FABRIC
 - SEE DWG C-001 FOR SUGGESTED GATE LOCATION
 - 1 20' GATE TO BE INSTALLED
 - 1 MAN-GATE TO BE INSTALLED



2 MAN- GATE DETAILS
 C-100 SCALE: NONE



3 PERIMETER FENCE & MAIN GATES DETAILS
 C-100 SCALE: NONE

NOTE:
 SEE DWG E-301 FOR FENCE GROUNDING DETAILS

Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP

DESIGNERS SEAL AND SIGN

12-07-2016

SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS
 SHUTESBURY GROUND MOUNT
 PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

SHEET TITLE
 FENCE & GATE DETAILS
 SHEET 1

ENGINEER: EDGAR PUESAN	DRAWN BY: EDGAR PUESAN
PROJECT NO. 1620400	SHEET NO. C-100
CREATION DATE 10/04/2016	
SCALE AS NOTED	

NOTES:

5,891.52kW DC GROUND MOUNTED PV SYSTEM:

17,328 TRINA 340W MODULES.

912 STRINGS TOTAL,
 19 MODULES PER STRING,
 20° TILT
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(3) POWER ELECTRONICS
 1500kW INVERTERS

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1	REVISED ROAD PATH	02/13/2017	EP	EP
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DESIGNERS SEAL AND SIGN

2-15-2017

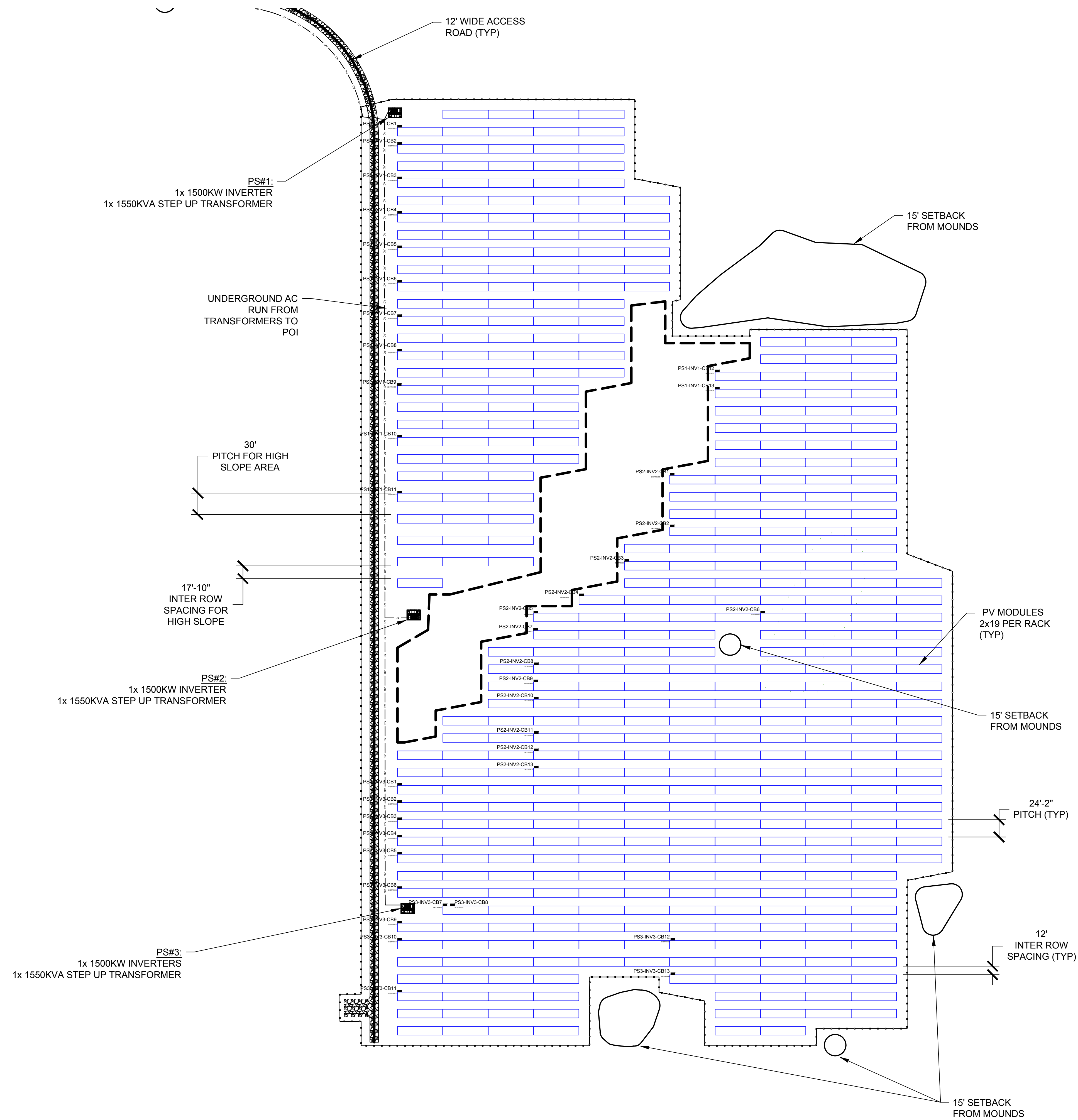
SYSTEM DESIGNER

SYSTEM OWNER

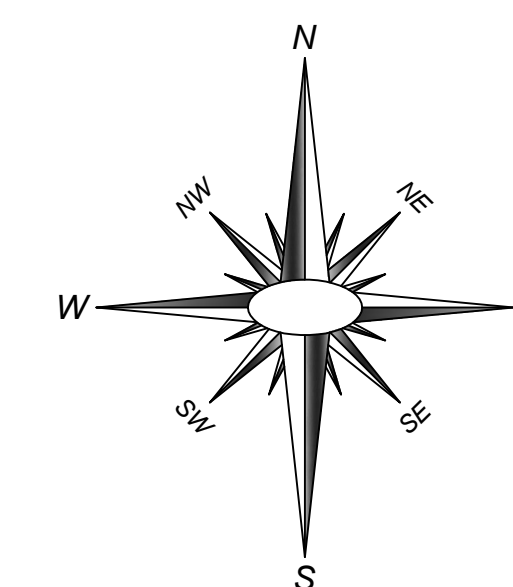
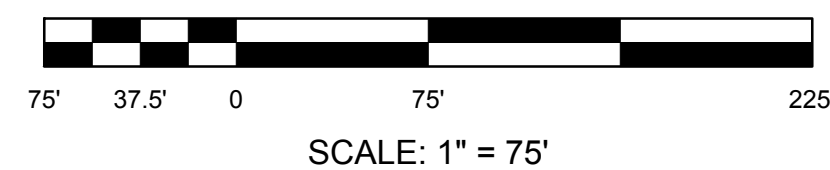
PROJECT NAME AND ADDRESS
 SHUTESBURY GROUND MOUNT
 PRATT CORNER RD AND REED RD,
 SHUTESBURY, MA 01072

SHEET TITLE
 PV SITE PLAN



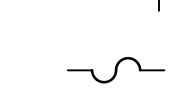
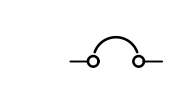
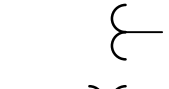
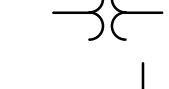
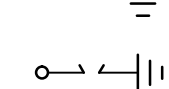


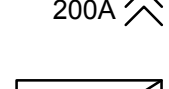

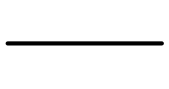
ENGINEER: EDGAR PUESAN	DRAWN BY: EDGAR PUESAN
PROJECT NO. 1620400	SHEET NO.
CREATION DATE 10/04/2016	E-001
SCALE AS NOTED	







1 OVERALL SITE PLAN
 E-001



SYMBOL LEGEND

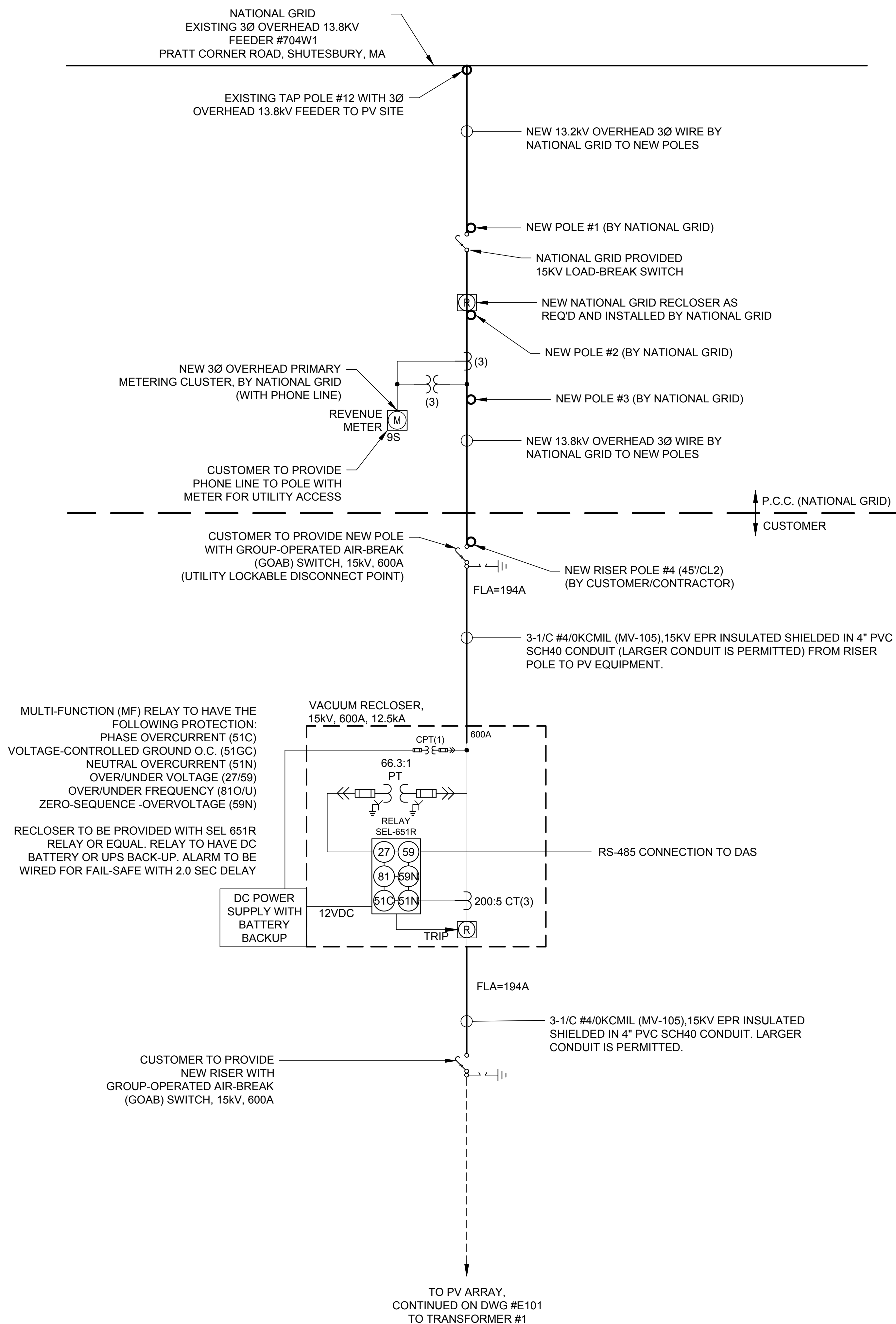
-  LOAD - BREAK SWITCH FUSE, SIZE AS INDICATED
-  TRANSFORMER, SIZE AS INDICATED (GRD WYE : WYE TYPICAL)
-  FUSE
-  CIRCUIT BREAKER
-  CURRENT TRANSFORMER
-  POTENTIAL TRANSFORMER
-  GROUND
-  LIGHTNING ARRESTED
-  GROUP AIR (GOAB) SWITCH
-  REVENUE METER (BY UTILITY)
-  200A LOAD BREAK ELBOWS
-  PV INVERTER

-  OVERHEAD / PRIMARY
-  UNDERGROUND / PRIMARY
-  ON GRADE / PRIMARY
-  EQUIPMENT

PROJECT LOCATION
42°26'24.01"N
72°26'42.82"W

PV SYSTEM SUMMARY
17328 PANELS
TRINA 3340W
340W @ STC EACH
5,891,520WDC TOTAL
19 MODULES PER STRING
912 STRINGS
4500kW AC TOTAL
(3) POWER ELECTRONICS
1500kW INVERTERS
& (3) 1550KVA PAD MOUNTED TRANSFORMERS

DEVICE	DESCRIPTION
27T	TIME UNDER VOLTAGE RELAY
27I	INSTANTANEOUS UNDER VOLTAGE RELAY
32F	FORWARD OVER POWER RELAY
32R	REVERSE POWER RELAY
46	NEGATIVE PHASE SEQUENCE OVERCURRENT RELAY
47	REVERSE PHASE VOLTAGE RELAY
50/51	INSTANTANEOUS/TIME OVERCURRENT RELAY
51N	GROUND OVERCURRENT RELAY
59I	INSTANTANEOUS OVERVOLTAGE RELAY
59T	TIME OVERVOLTAGE RELAY
60	VOLTAGE BALANCE RELAY
81/0	OVER FREQUENCY RELAY
81/U	UNDER FREQUENCY RELAY



PROPOSED SEL-651R RELAY SETTINGS

DEVICE	PICKUP	TIME DELAY
27-1	50%	6.5 CYC
27-2	88%	117 CYC
59-1	110%	57 CYC
59-2	120%	6.5 CYC
81U-1	57HZ	6.5 CYC
81U-2	58.5HZ	100 SEC
810-1	60.5HZ	6.5 CYC
51C	243A	0.5 TD U1
51GC	122A	0.5 TD U1
59N	100V	80 CYC

(SETTINGS INCLUDED 3 CYCLE ESTIMATE CONTACTOR OPENING TIME)

INVERTER SETTINGS

DEVICE	PICKUP	TIME DELAY
27-1	V<50% (190V)	6.5 CYC
27-2	V<88% (334V)	117 CYC
59-1	V>110% (418V)	57 CYC
59-2	V>=120% (456V)	6.5 CYC
81U-1	F<57HZ	6.5 CYC
81U-2	F<58.5HZ	32.0 SEC
810-1	F>60.5HZ	6.5 CYC

SETTINGS PER IEEE1547 TABLE 1 & 2 AND NPCC DIRECTORY FOR UNDER-FREQUENCY.

Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP

DESIGNER'S SEAL AND SIGN

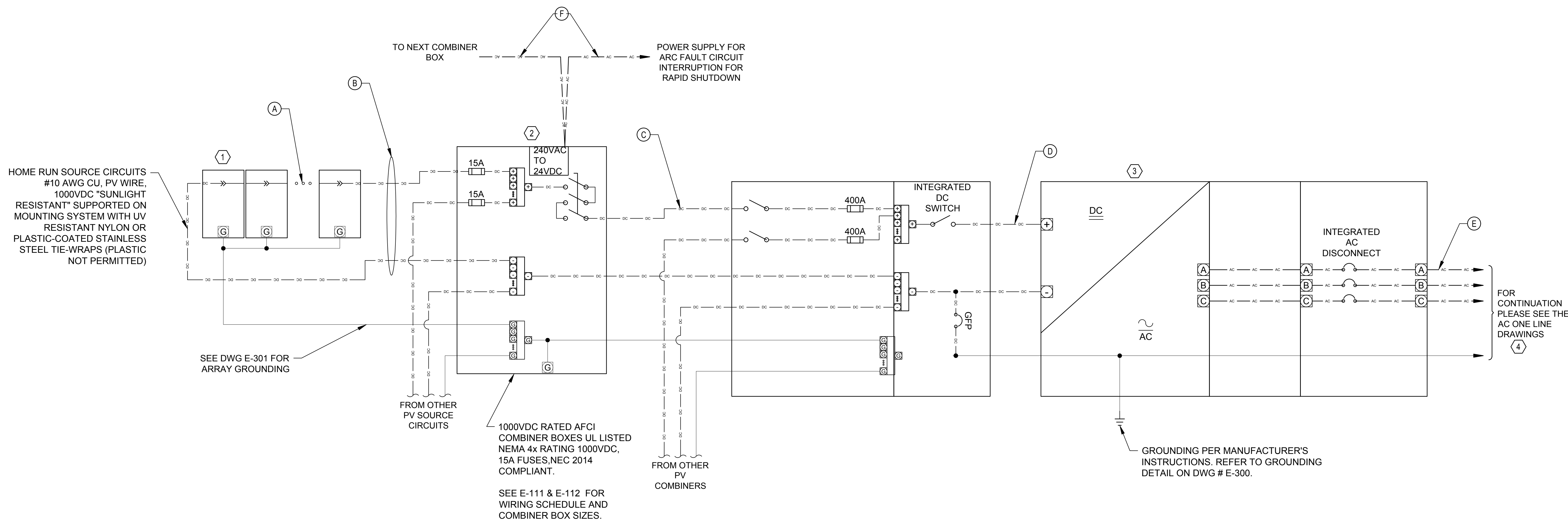
SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS
SHUTESBURY GROUND MOUNT
PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

SHEET TITLE
AC ONE LINE DIAGRAM SHEET 1

ENGINEER: EDGAR PUESAN	DRAWN BY: EDGAR PUESAN
PROJECT NO. 1620400	SHEET NO. E-100
CREATION DATE 10/04/2016	
SCALE AS NOTED	



EQUIPMENT SCHEDULE			
ITEM	DESCRIPTION	DETAIL	REMARKS
1	PV SOURCE CIRCUIT/STRINGS	19 TRINA 340W MODULES IN EACH STRING	TRINA TSM-340 340W MODULES: 17,328 TOTAL
2	PV SOURCE CIRCUIT/COMBINER	MANUFACTURER TBD, 1000VDC, UL LISTED, 90°C, NEMA 4X, 15A FUSES WITH ARC FAULT CIRCUIT INTERRUPTION.	REFER TO WIRING SCHEDULE, E-111 AND E-112
3	INVERTER	PE FSDK RECOMBINERS AND FS1401CU 1550kW INVERTERS, CURTAILED TO 1500kW	WITH INTEGRATED DC AND AC DISCONNECTS
4	INTERCONNECTIONS	REFER TO DWG E-100 & E-101	INVERTER 1, 2, & 3 AT 400V, 3Ø, 3W + GND

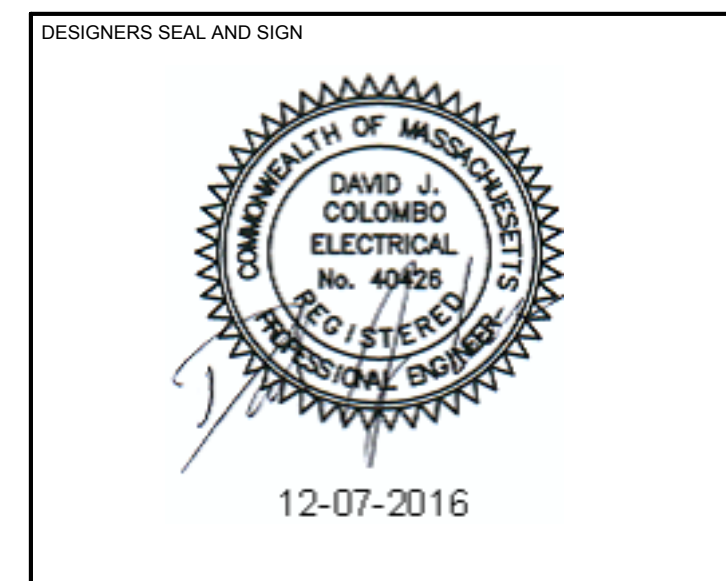
DC SYSTEM INFORMATION									
INVERTER NUMBER	PANEL			NUM STRINGS	MODS/STRING	TOTAL MODS	TOTAL POWER (W)	INVERTER REF	INVERTER TYPE
	MFG	MODEL	POWER (W)						
INVERTER 1	TRINA	TSM-340	340	290	19	5,510	1,873,400	PS1	POWER ELECTRONICS FS1401CU 1500kW
INVERTER 2	TRINA	TSM-340	340	310	19	5,890	2,002,600	PS2	POWER ELECTRONICS FS1401CU 1500kW
INVERTER 3	TRINA	TSM-340	340	312	19	5,928	2,015,520	PS3	POWER ELECTRONICS FS1401CU 1500kW
TOTAL				912		17,328	5,891,520		

CONDUCTOR AND CONDUIT SCHEDULE				
ITEM	DESCRIPTION	CONDUCTOR	CONDUIT	PATH
A	PV SOURCE CIRCUITS(LEADS)	2 X #12, CU, 1000V PV WIRE	N/A - BACK OF MODULE WIRING	N/A
B	PV SOURCE CIRCUITS (PV HOMERUNS)	2 X #10, CU, 1000V PV WIRE	N/A - HOME RUN WIRING	ON TOP Z-PURLIN
C	PV OUTPUT CIRCUITS (DC FEEDERS)	REFER TO WIRING SCHEDULE DWG E-111 & E-112		PVC CONDUIT
D	RECOMBINER BOX OUTPUT CIRCUITS	BUS BAR CONNECTION TO INVERTER PROVIDED BY POWER ELECTRONICS		BUS DUCT
E	INVERTER OUTPUT CIRCUITS	REFER TO THE AC ONE-LINE DIAGRAM DRAWINGS E-100 & E-101		PVC CONDUIT
F	POWER SUPPLY FOR ARC FAULT CIRCUIT INTERRUPTION IN COMBINER BOX	2 X #10, CU + #10 CU GND, 240VAC, THWN-2 1-PHASE WIRE (DAISY CHAINED)	(1) 1" CONDUIT	PVC CONDUIT TO COMBINER BOX CONTACTORS

NOTE:

- REFER TO E-111 & E-112 FOR WIRING SCHEDULE OF DC RECOMBINER AND COMBINER BOXES.
- CONTRACTOR SHALL VERIFY THAT THE COMBINER BOXES USED MATCHES UP WITH THE STRING COUNT PRIOR TO INSTALLATION
- REFER TO MANUFACTURER'S MANUALS AND DRAWINGS FOR PROPER INSTALLATION AND GROUNDING GUIDELINES.

Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP



SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS
 SHUTESBURY GROUND MOUNT
 PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

SHEET TITLE
 DC ONE LINE DIAGRAM

ENGINEER: EDGAR PUESAN	DRAWN BY: EDGAR PUESAN
PROJECT NO. 1620400	SHEET NO.
CREATION DATE 10/04/2016	E-110
SCALE AS NOTED	

DC WIRING SCHEDULE FOR COMBINER BOXES

Conti
 2045 LINCOLN HWY
 EDISON, NJ 08817

INVERTER PS1-INV1 - 1500kW: WIRING SCHEDULE FOR COMBINERS															
NO.	COMBINER	STRINGS	MODULE TYPE	MODULE WATTAGE	MAX ISC CURRENT	COMBINER BOX DISCONNECT	DC FUSE IN INVERTER OR EQUIVALENT	COMBINER BOX OUTPUT CONDUCTOR	SETS	CONDUIT	DC FEEDER LENGTH TO INVERTER FT	DC FEEDER VOLTAGE DROP	MAX STRING LENGTH TO COMBINER BOX FT	STRING VOLTAGE DROP	TOTAL DC VOLTAGE DROP
1	INV1-CB1	22	TRINA 340W	340	259.88A	350A	350A	2 X 500kCMIL AL + #1 AL, GND	1	3"	36	0.08%	285	0.87%	0.95%
2	INV1-CB2	22	TRINA 340W	340	259.88A	350A	350A	2 X 500kCMIL AL + #1 AL, GND	1	3"	59	0.14%	315	0.96%	1.10%
3	INV1-CB3	22	TRINA 340W	340	259.88A	350A	350A	2 X 500kCMIL AL + #1 AL, GND	1	3"	109	0.25%	375	1.14%	1.39%
4	INV1-CB4	22	TRINA 340W	340	259.88A	350A	350A	2 X 500kCMIL AL + #1 AL, GND	1	3"	157	0.36%	375	1.14%	1.50%
5	INV1-CB5	22	TRINA 340W	340	259.88A	350A	350A	2 X 500kCMIL AL + #1 AL, GND	1	3"	206	0.47%	375	1.14%	1.61%
6	INV1-CB6	22	TRINA 340W	340	259.88A	350A	350A	2 X 500kCMIL AL + #1 AL, GND	1	3"	254	0.58%	315	0.96%	1.54%
7	INV1-CB7	22	TRINA 340W	340	259.88A	350A	350A	2 X 500kCMIL AL + #1 AL, GND	1	3"	302	0.69%	315	0.96%	1.65%
8	INV1-CB8	22	TRINA 340W	340	259.88A	350A	350A	2 X 500kCMIL AL + #1 AL, GND	1	3"	351	0.80%	290	0.88%	1.68%
9	INV1-CB9	22	TRINA 340W	340	259.88A	350A	350A	2 X 500kCMIL AL + #1 AL, GND	1	3"	399	0.91%	275	0.84%	1.75%
10	INV1-CB10	22	TRINA 340W	340	259.88A	350A	350A	2 X 500kCMIL AL + #1 AL, GND	1	3"	472	1.08%	225	0.69%	1.77%
11	INV1-CB11	22	TRINA 340W	340	259.88A	350A	350A	2 X 500kCMIL AL + #1 AL, GND	1	3"	560	1.28%	230	0.70%	1.98%
12	INV1-CB12	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	824	1.57%	245	0.75%	2.32%
13	INV1-CB13	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	848	1.62%	250	0.76%	2.38%

NOTE:

- UP TO 30 STRING HOMERUN CONDUCTORS MAY BE ALLOCATED TO A SINGLE 2" CONDUIT USING #10 CU PV WIRE.
- CONDUCTORS TO BE EQUIPPED WITH THERMOSET INSULATION.
- COMBINER BOX OUTPUT TERMINALS AND RECOMBINER DC BREAKER TERMINALS ARE BOTH RATED FOR 90°C. DC CONDUCTORS MUST ALSO BE RATED FOR 90°C.

NOTE:

- CONDUIT SIZES ARE THE MINIMUM REQUIRED PER NEC. REFER TO NOTES 1.5 ON SHEET G-100.
- WIRE SIZES ARE THE MINIMUM REQUIRED FOR VOLTAGE DROP OR PER NEC REQUIREMENTS.
- ALL DC WIRES MUST BE RATED FOR 1000V.
- CONTRACTOR RESPONSIBLE FOR TOTAL WIRE LENGTHS. THE WIRE LENGTHS ON THIS SHEET ARE FOR GUIDANCE ONLY.

INVERTER PS2-INV2 - 1500kW: WIRING SCHEDULE FOR COMBINERS															
NO.	COMBINER	STRINGS	MODULE TYPE	MODULE WATTAGE	MAX ISC CURRENT	COMBINER BOX DISCONNECT	DC FUSE IN INVERTER OR EQUIVALENT	COMBINER BOX OUTPUT CONDUCTOR	SETS	CONDUIT	DC FEEDER LENGTH TO INVERTER FT	DC FEEDER VOLTAGE DROP	MAX STRING LENGTH TO COMBINER BOX FT	STRING VOLTAGE DROP	TOTAL DC VOLTAGE DROP
1	INV1-CB1	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	496	1.03%	305	0.93%	1.96%
2	INV1-CB2	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	423	0.88%	300	0.91%	1.79%
3	INV1-CB3	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	330	0.69%	350	1.07%	1.76%
4	INV1-CB4	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	240	0.50%	475	1.45%	1.95%
5	INV1-CB5	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	172	0.36%	345	1.05%	1.41%
6	INV1-CB6	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	490	1.02%	245	0.75%	1.77%
7	INV1-CB7	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	196	0.41%	250	0.76%	1.17%
8	INV1-CB8	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	244	0.51%	540	1.64%	2.15%
9	INV1-CB9	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	268	0.56%	540	1.64%	2.20%
10	INV1-CB10	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	293	0.61%	540	1.64%	2.25%
11	INV1-CB11	22	TRINA 340W	340	259.88A	350A	350A	2 X 500kCMIL AL + #1 AL, GND	1	3"	340	0.78%	520	1.58%	2.36%
12	INV1-CB12	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	365	0.76%	520	1.58%	2.34%
13	INV1-CB13	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	390	0.81%	520	1.58%	2.39%

INVERTER PS3-INV3 - 1500kW: WIRING SCHEDULE FOR COMBINERS															
NO.	COMBINER	STRINGS	MODULE TYPE	MODULE WATTAGE	MAX ISC CURRENT	COMBINER BOX DISCONNECT	DC FUSE IN INVERTER OR EQUIVALENT	COMBINER BOX OUTPUT CONDUCTOR	SETS	CONDUIT	DC FEEDER LENGTH TO INVERTER FT	DC FEEDER VOLTAGE DROP	MAX STRING LENGTH TO COMBINER BOX FT	STRING VOLTAGE DROP	TOTAL DC VOLTAGE DROP
1	INV1-CB1	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	225	0.47%	710	2.16%	2.63%
2	INV1-CB2	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	200	0.42%	710	2.16%	2.58%
3	INV1-CB3	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	176	0.37%	710	2.16%	2.53%
4	INV1-CB4	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	152	0.32%	710	2.16%	2.48%
5	INV1-CB5	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	127	0.26%	710	2.16%	2.42%
6	INV1-CB6	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	80	0.17%	660	2.01%	2.18%
7	INV1-CB7	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	68	0.14%	595	1.81%	1.95%
8	INV1-CB8	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	80	0.17%	610	1.86%	2.03%
9	INV1-CB9	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	59	0.12%	415	1.26%	1.38%
10	INV1-CB10	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	82	0.17%	350	1.07%	1.24%
11	INV1-CB11	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	155	0.32%	250	0.76%	1.08%
12	INV1-CB12	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	467	0.97%	290	0.88%	1.85%
13	INV1-CB13	24	TRINA 340W	340	283.50A	400A	400A	2 X 600kCMIL AL + #1 AL, GND	1	3"	515	1.07%	315	0.96%	2.03%

Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP

DESIGNER'S SEAL AND SIGN

SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS

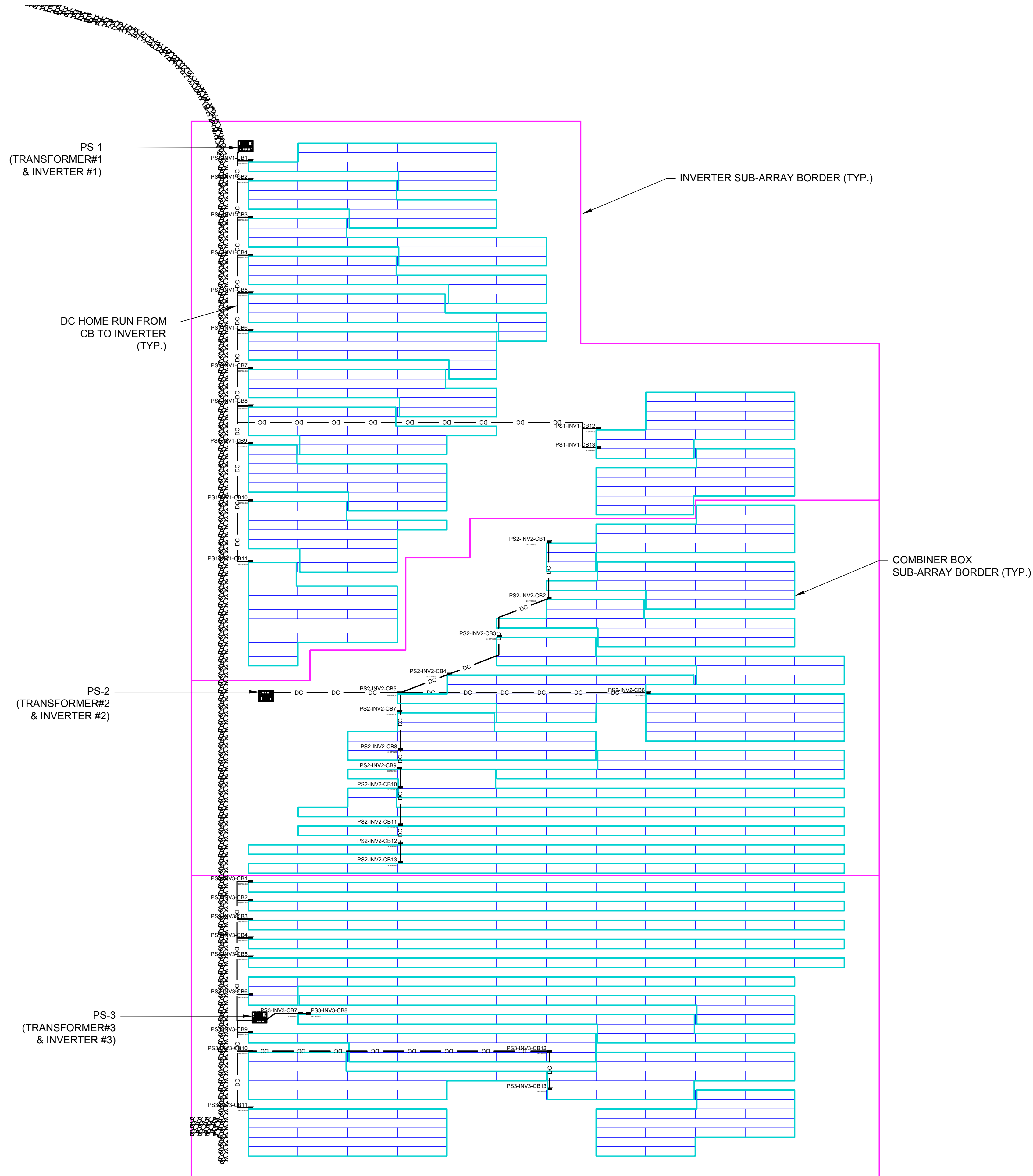
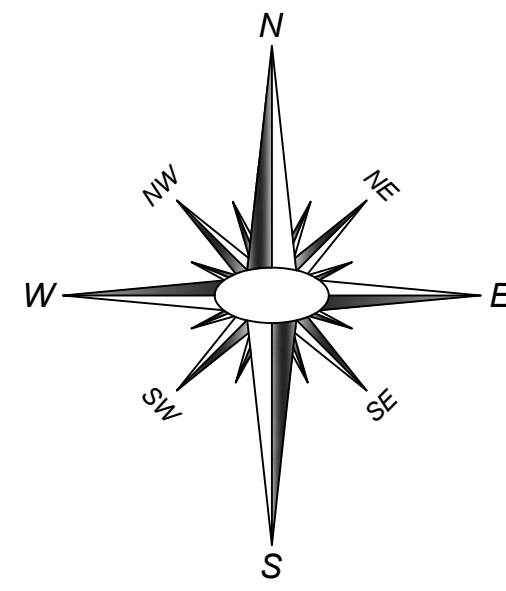
SHUTESBURY GROUND MOUNT

PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

SHEET TITLE

DC WIRING SCHEDULE SHEET 1

ENGINEER: EDGAR PUESAN	DRAWN BY: EDGAR PUESAN
PROJECT NO. 1620400	SHEET NO. E-111
CREATION DATE 10/04/2016	SCALE AS NOTED



PS-1
(TRANSFORMER#1
& INVERTER #1)

DC HOME RUN FROM
CB TO INVERTER
(TYP.)

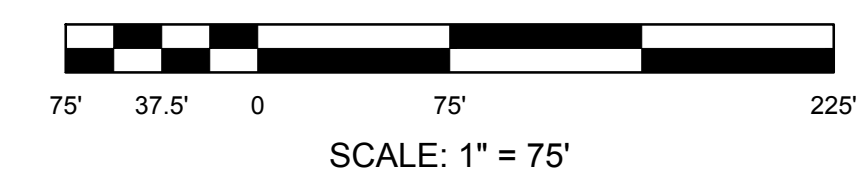
INVERTER SUB-ARRAY BORDER (TYP.)

COMBINER BOX
SUB-ARRAY BORDER (TYP.)

PS-2
(TRANSFORMER#2
& INVERTER #2)

PS-3
(TRANSFORMER#3
& INVERTER #3)

1 OVERALL DC FEEDER PLAN
E-200



Rev	Description	Date	Dwn	Chk
1	REVISED ROAD PATH	02/13/2017	EP	EP
0	PERMIT SET	12/05/2016	EP	EP

DESIGNERS SEAL AND SIGN

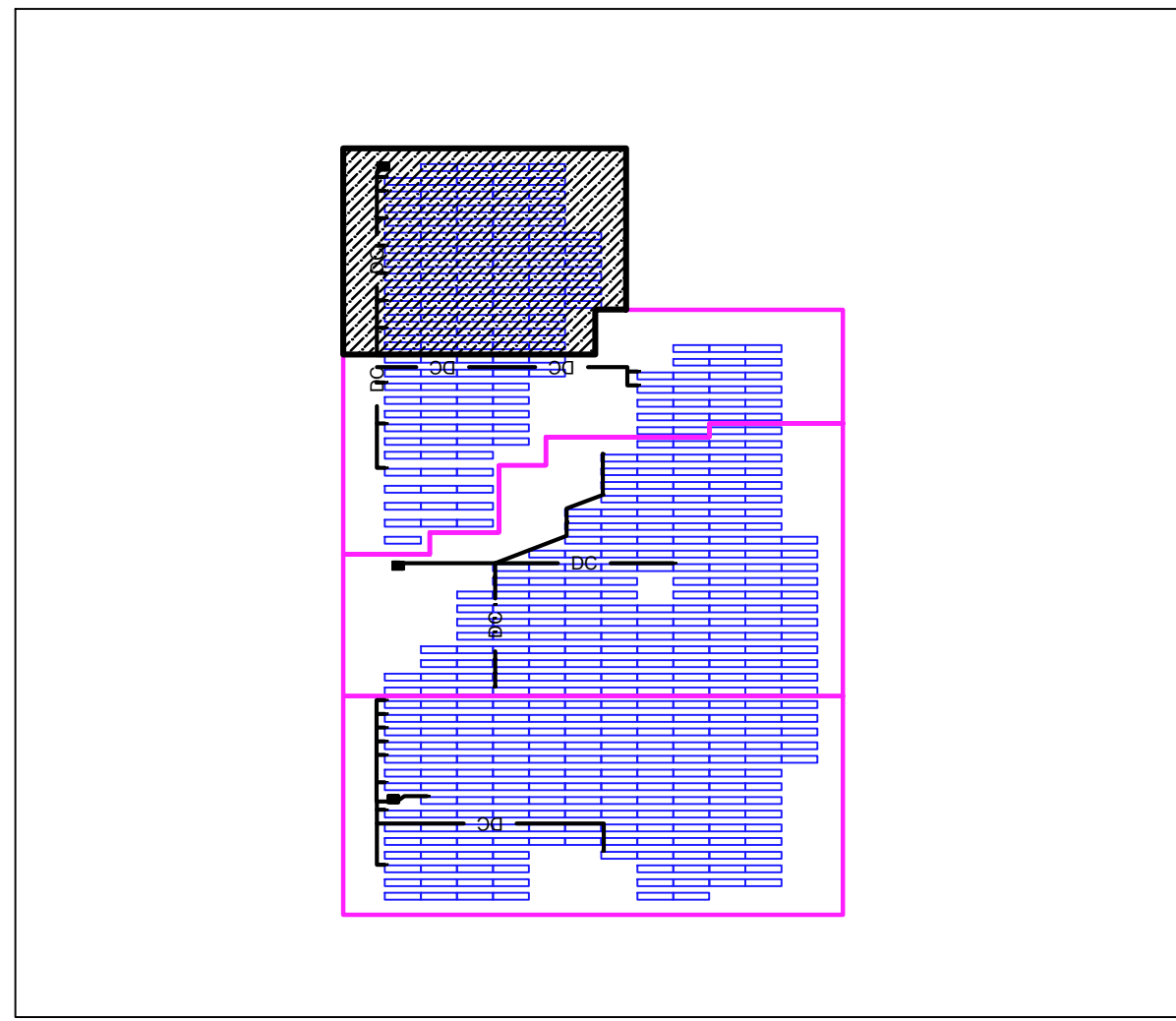
SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS
SHUTESBURY GROUND MOUNT
PRATT CORNER RD AND REED
RD, SHUTESBURY, MA 01072

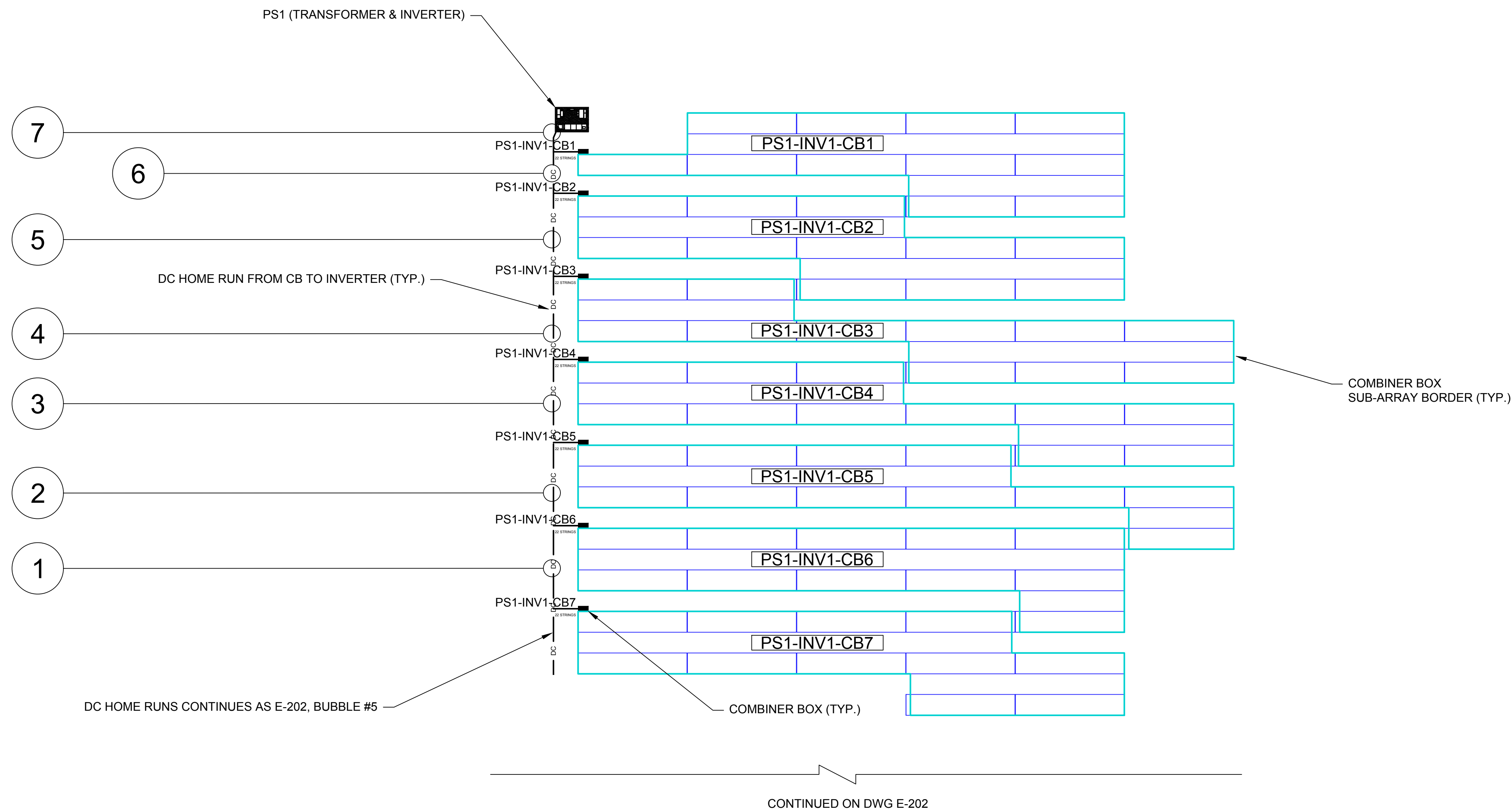
SHEET TITLE
OVERALL DC FEEDER PLAN

ENGINEER: EDGAR PUESAN	DRAWN BY: X.WENG
PROJECT NO: 1620400	SHEET NO. E-200
CREATION DATE: 10/04/2016	
SCALE: AS NOTED	

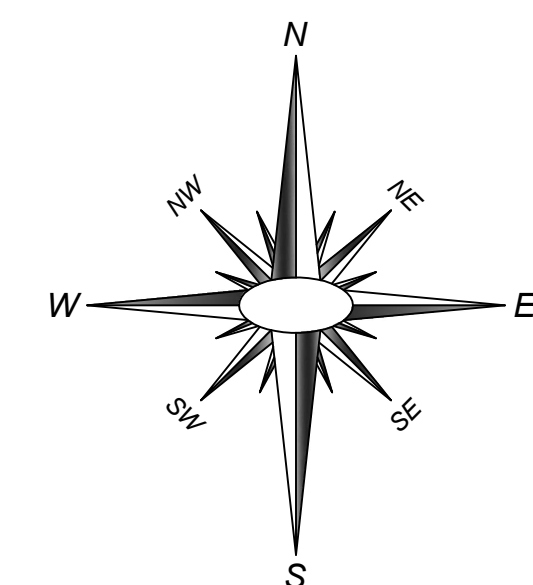
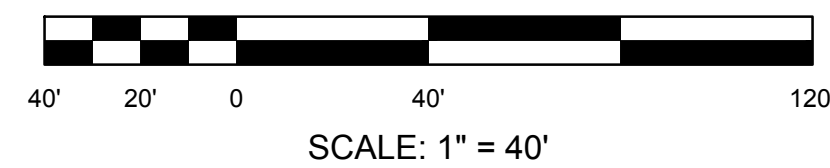


KEY PLAN
SCALE: NTS

DC PV OUTPUT CIRCUIT DETAILS		
BUBBLE #	# OF OUTPUTS	SOURCE COMBINER BOX
1	7	PS1-INV1-CB7,8,9,10,11,12,13
2	8	PS1-INV1-CB6,7,8,9,10,11,12,13
3	9	PS1-INV1-CB5,6,7,8,9,10,11,12,13
4	10	PS1-INV1-CB4,5,6,7,8,9,10,11,12,13
5	11	PS1-INV1-CB3,4,5,6,7,8,9,10,11,12,13
6	12	PS1-INV1-CB2,3,4,5,6,7,8,9,10,11,12,13
7	13	PS1-INV1-CB1,2,3,4,5,6,7,8,9,10,11,12,13



1
E-201 DC FEEDER PLAN



Conti
2045 LINCOLN HWY
EDISON, NJ 08817

Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP

DESIGNER'S SEAL AND SIGN

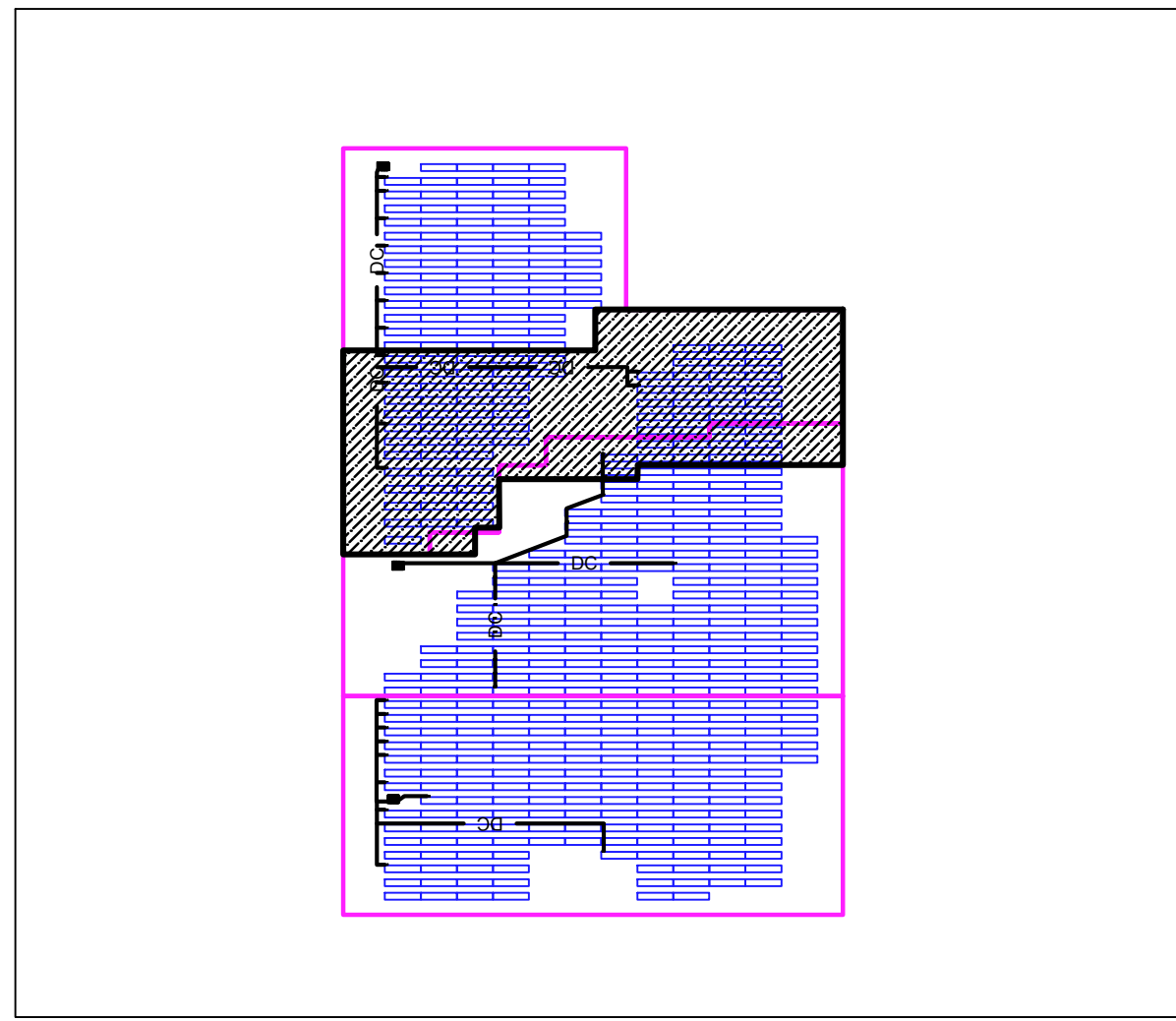
SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS
SHUTESBURY GROUND MOUNT
PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

SHEET TITLE
DC FEEDER PLAN
SHEET 1

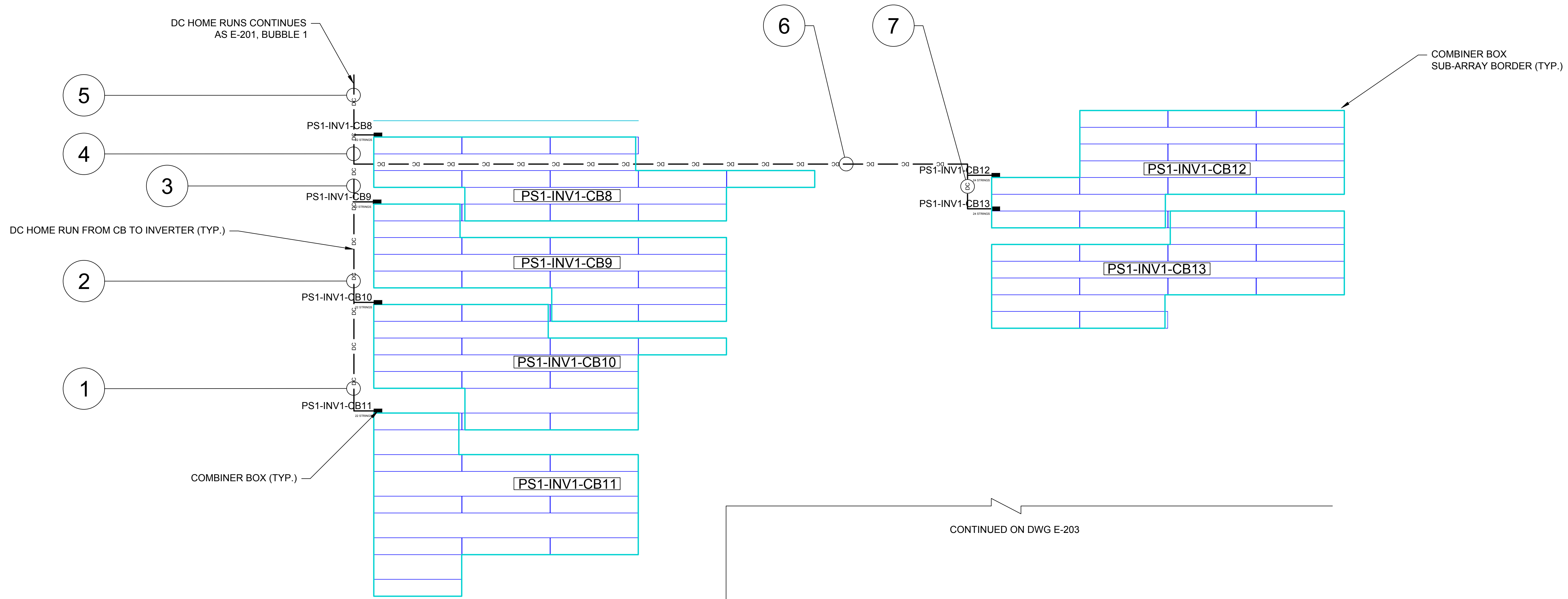
ENGINEER: EDGAR PUESAN	DRAWN BY: X.WENG
PROJECT NO: 1620400	SHEET NO. E-201
CREATION DATE: 10/04/2016	
SCALE: AS NOTED	



KEY PLAN
 SCALE: NTS

DC PV OUTPUT CIRCUIT DETAILS		
BUBBLE #	# OF OUTPUTS	SOURCE COMBINER BOX
1	1	PS1-INV1-CB11
2	2	PS1-INV1-CB10,11
3	3	PS1-INV1-CB9,10,11
4	5	PS1-INV1-CB9,10,11,12,13
5	6	PS1-INV1-CB8,9,10,11,12,13
6	2	PS1-INV1-CB12,13
7	1	PS1-INV1-CB13

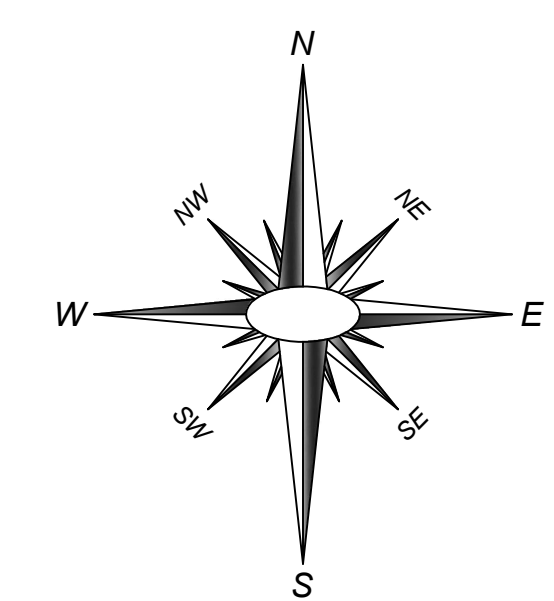
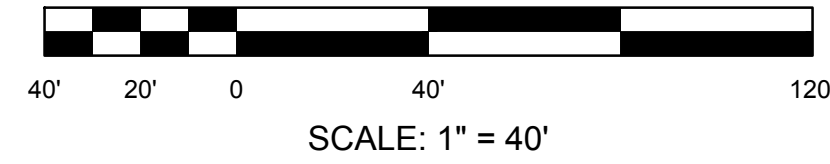
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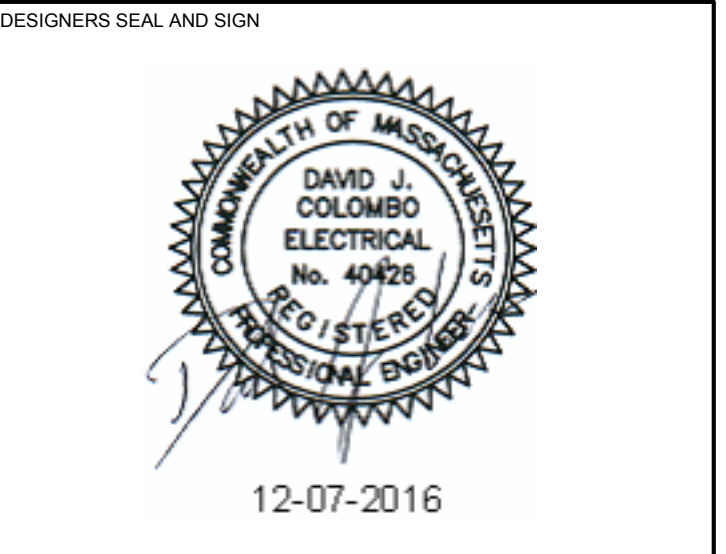
COMBINER BOX
 SUB-ARRAY BORDER (TYP.)

CONTINUED ON DWG E-203

1
 E-202 DC FEEDER PLAN



Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP



SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS
 SHUTESBURY GROUND MOUNT
 PRATT CORNER RD AND REED RD,
 SHUTESBURY, MA 01072

SHEET TITLE
 DC FEEDER PLAN
 SHEET 2

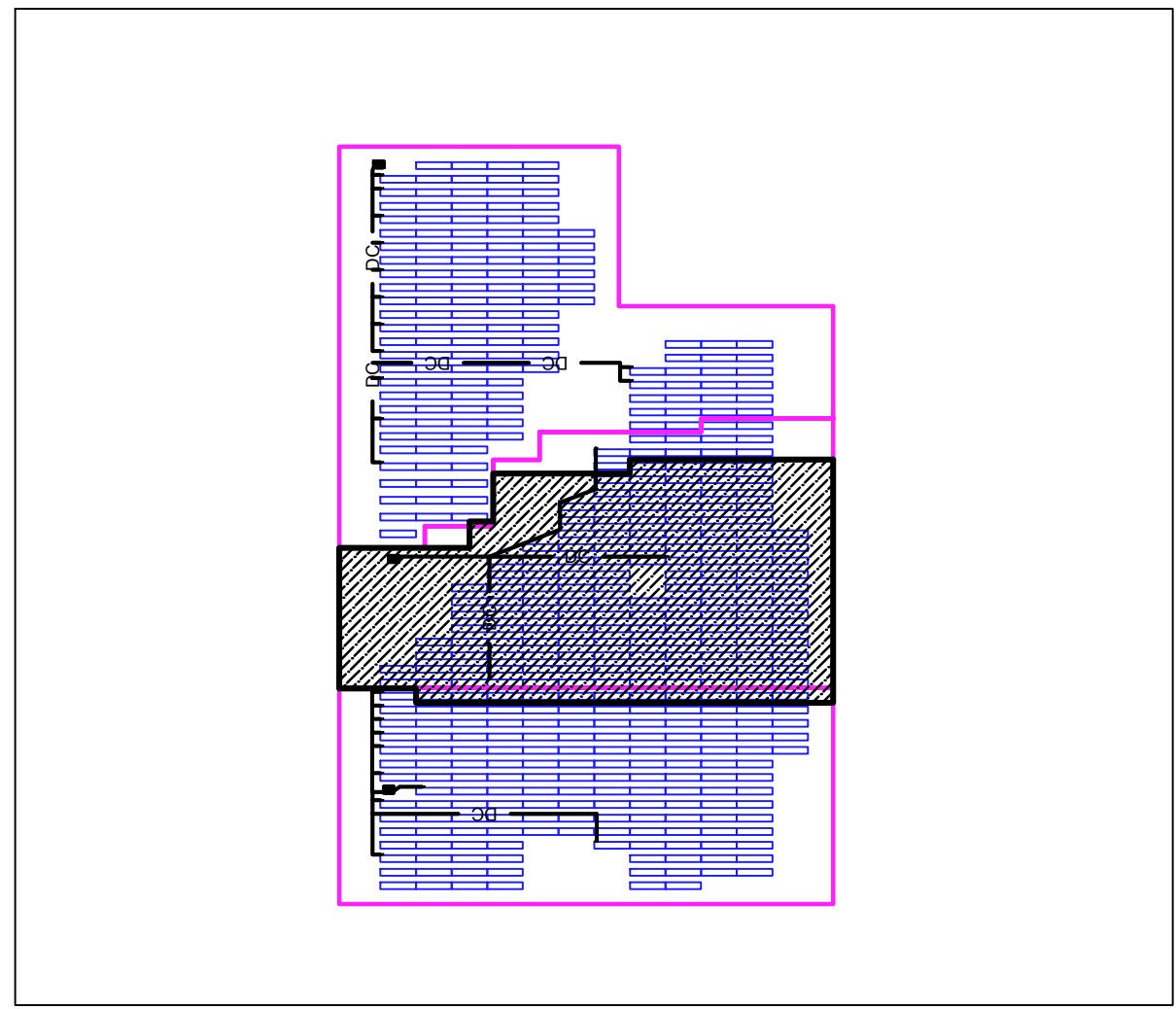
ENGINEER: EDGAR PUESAN	DRAWN BY: X.WENG
PROJECT NO: 1620400	SHEET NO. E-202
CREATION DATE: 10/04/2016	
SCALE: AS NOTED	

DC PV OUTPUT CIRCUIT DETAILS

BUBBLE #	# OF OUTPUTS	SOURCE COMBINER BOX
1	1	PS2-INV2-CB13
2	2	PS2-INV2-CB12,13
3	3	PS2-INV2-CB11,12,13
4	4	PS2-INV2-CB10,11,12,13
5	5	PS2-INV2-CB9,10,11,12,13
6	6	PS2-INV2-CB8,9,10,11,12,13

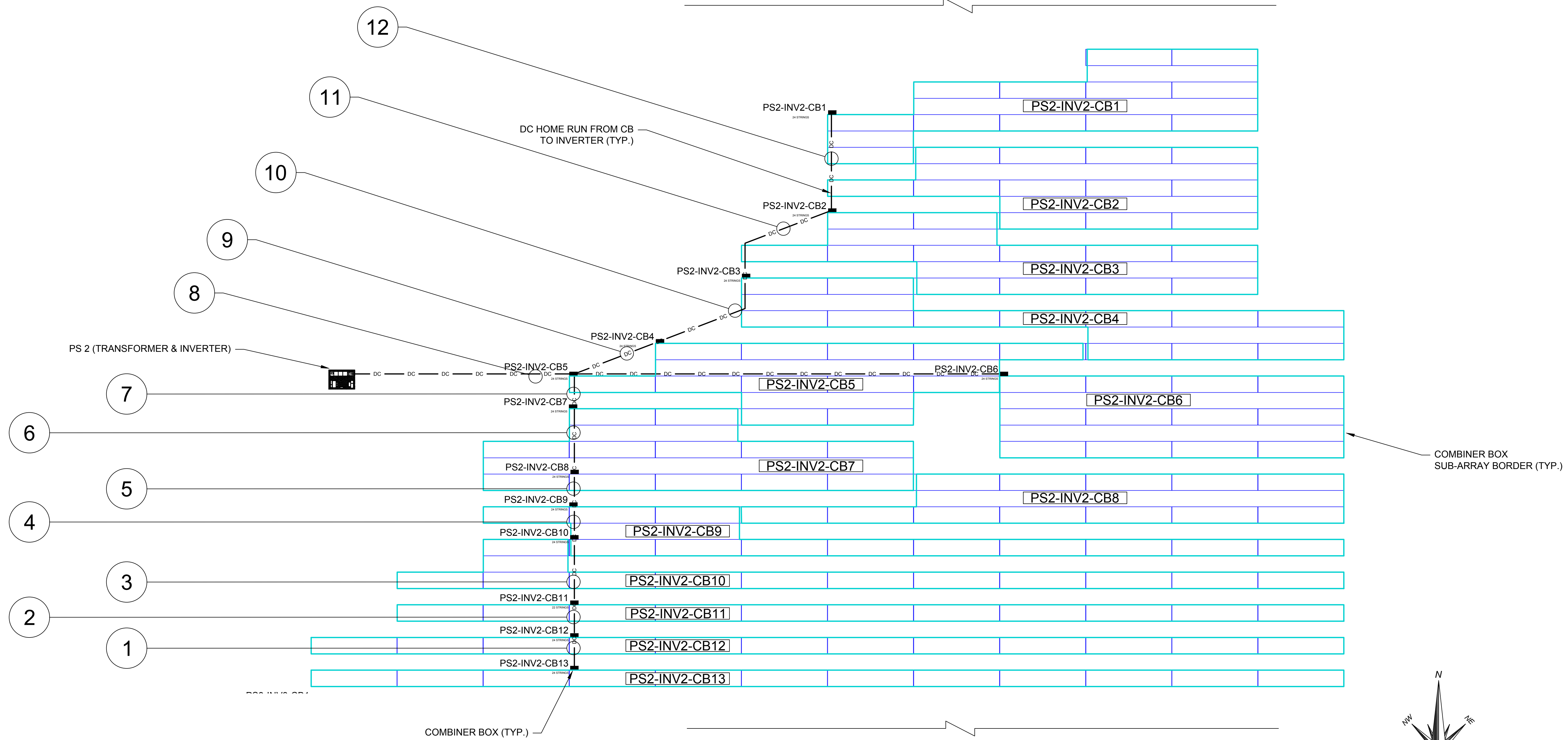
DC PV OUTPUT CIRCUIT DETAILS

BUBBLE #	# OF OUTPUTS	SOURCE COMBINER BOX
7	7	PS2-INV2-CB7,8,9,10,11,12,13
8	13	PS2-INV2-CB1,2,3,4,5,6,7,8,9,10,11,12,13
9	4	PS2-INV2-CB1,2,3,4
10	3	PS2-INV2-CB1,2,3
11	2	PS2-INV2-CB1,2
12	1	PS2-INV2-CB1



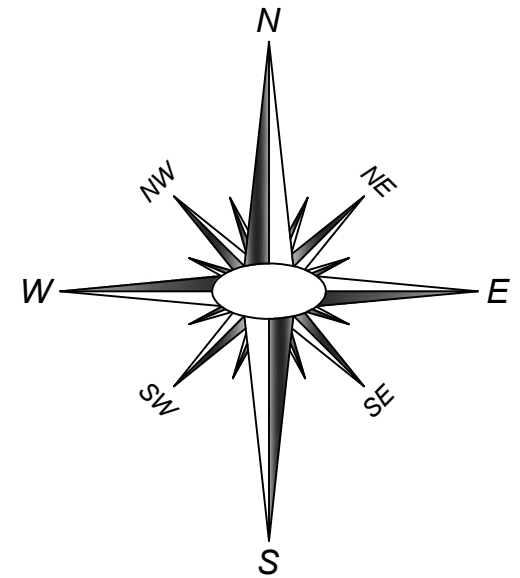
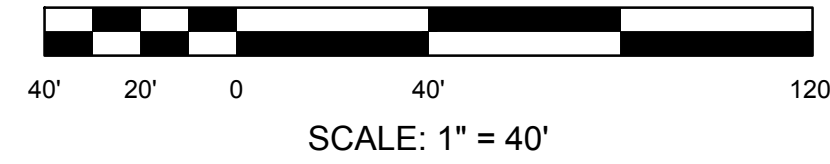
KEY PLAN
 SCALE: NTS

CONTINUED ON DWG E-202

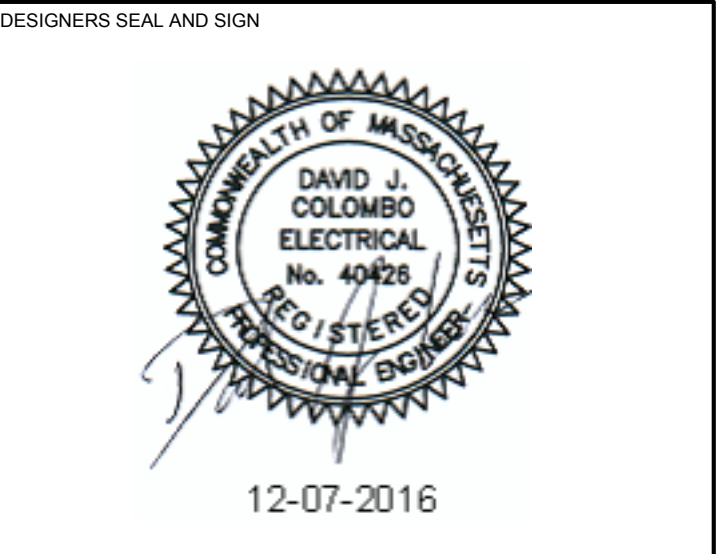


CONTINUED ON DWG E-204

1
 E-203 DC FEEDER PLAN



Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP



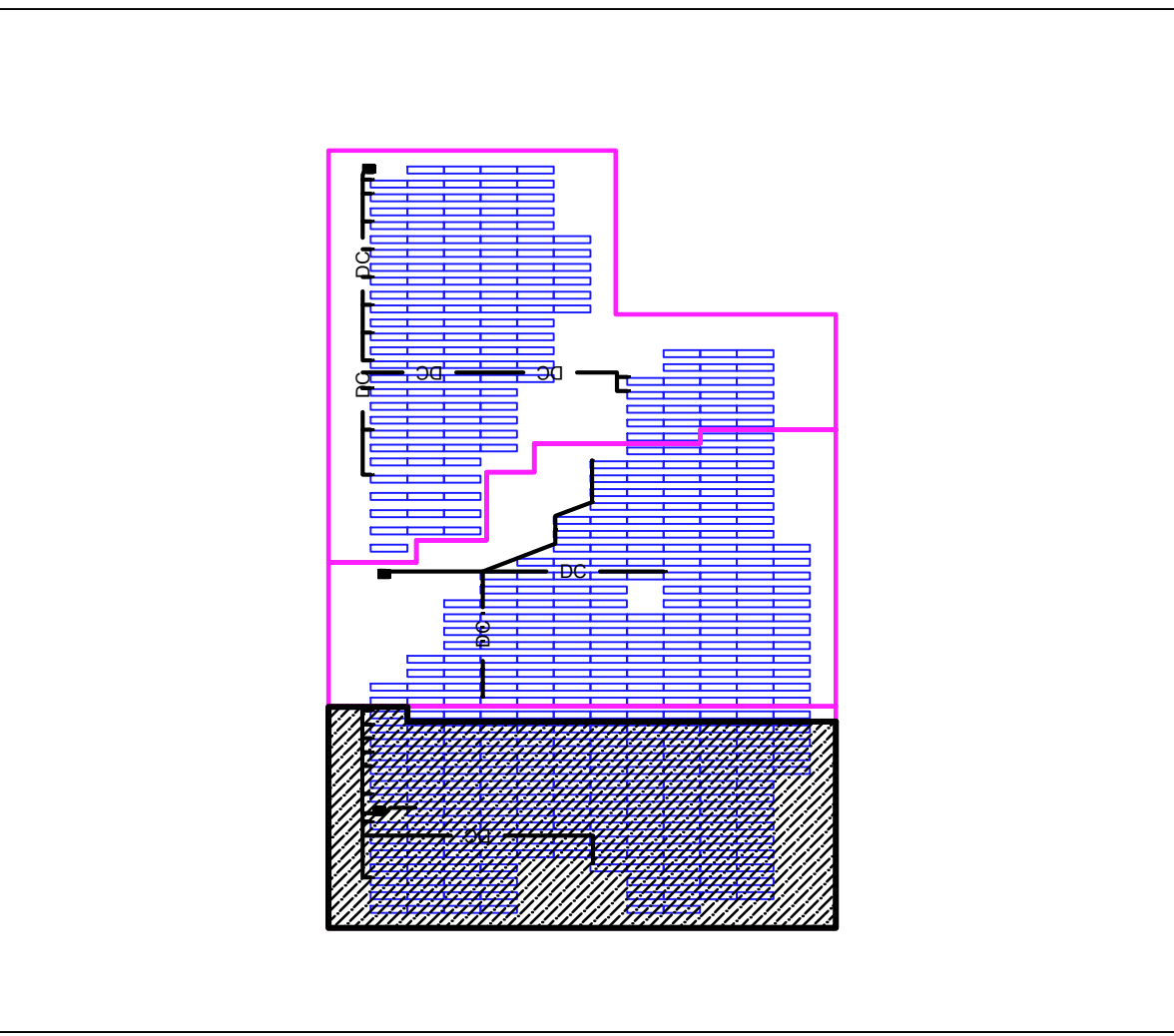
SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS
 SHUTESBURY GROUND MOUNT
 PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

SHEET TITLE
 DC FEEDER PLAN
 SHEET 3

ENGINEER: EDGAR PUESAN	DRAWN BY: X.WENG
PROJECT NO: 1620400	SHEET NO. E-203
CREATION DATE: 10/04/2016	
SCALE: AS NOTED	

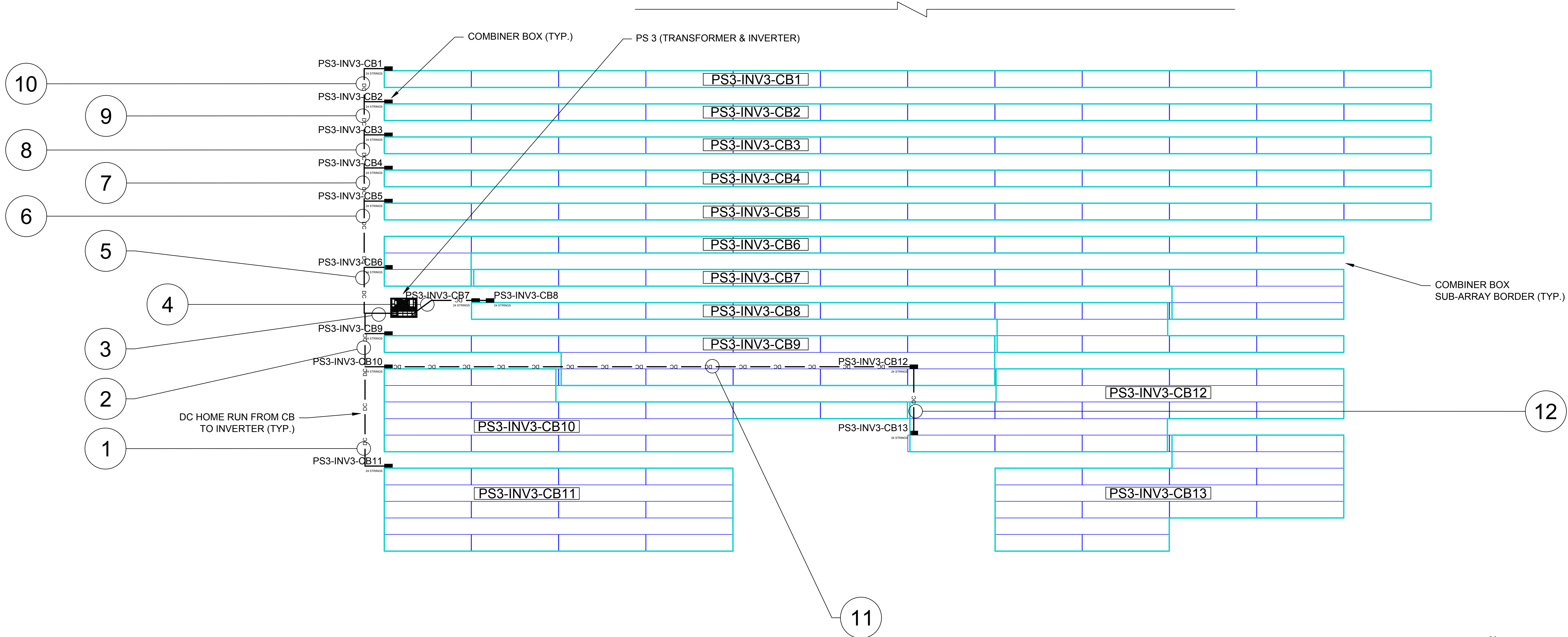


KEY PLAN
 SCALE: NTS

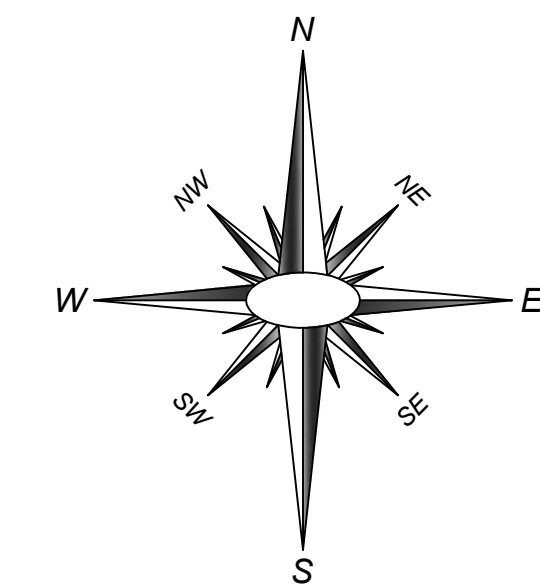
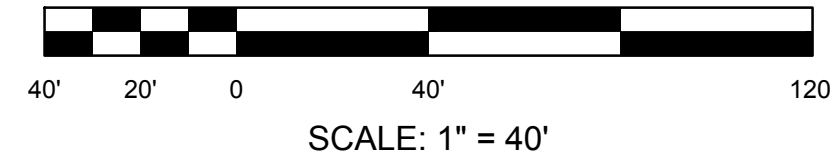
DC PV OUTPUT CIRCUIT DETAILS		
BUBBLE #	# OF OUTPUTS	SOURCE COMBINER BOX
1	1	PS3-INV3-CB11
2	4	PS3-INV3-CB10,11,12,13
3	13	PS3-INV3-CB1,2,3,4,5,6,7,8,9,10,11,12,13
4	2	PS3-INV3-CB6,7
5	6	PS3-INV3-CB1,2,3,4,5,6
6	5	PS3-INV3-CB1,2,3,4,5

DC PV OUTPUT CIRCUIT DETAILS		
BUBBLE #	# OF OUTPUTS	PS3-INV3-CB1,2,3
7	4	PS3-INV3-CB1,2,3,4
8	3	PS3-INV3-CB1,2,3
9	2	PS3-INV3-CB1,2
10	1	PS3-INV3-CB1
11	2	PS3-INV3-CB11,12
12	1	PS3-INV3-CB12

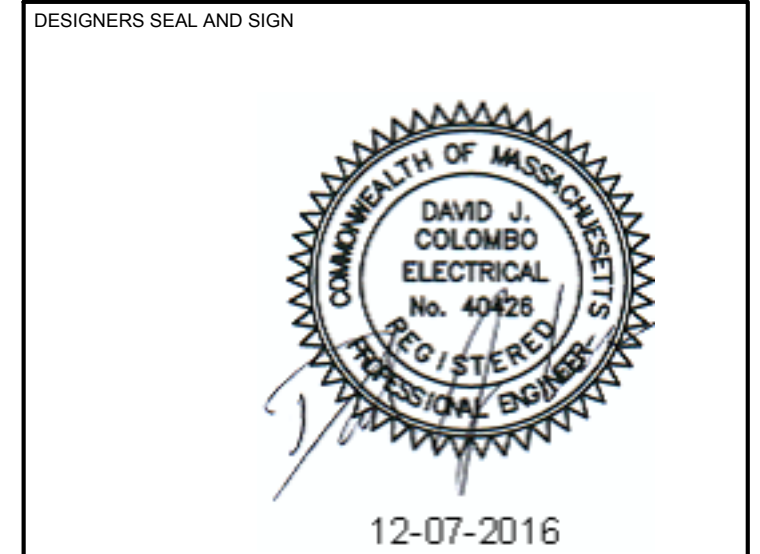
CONTINUED ON DWG E-203



1 DC FEEDER PLAN
 E-204



Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP



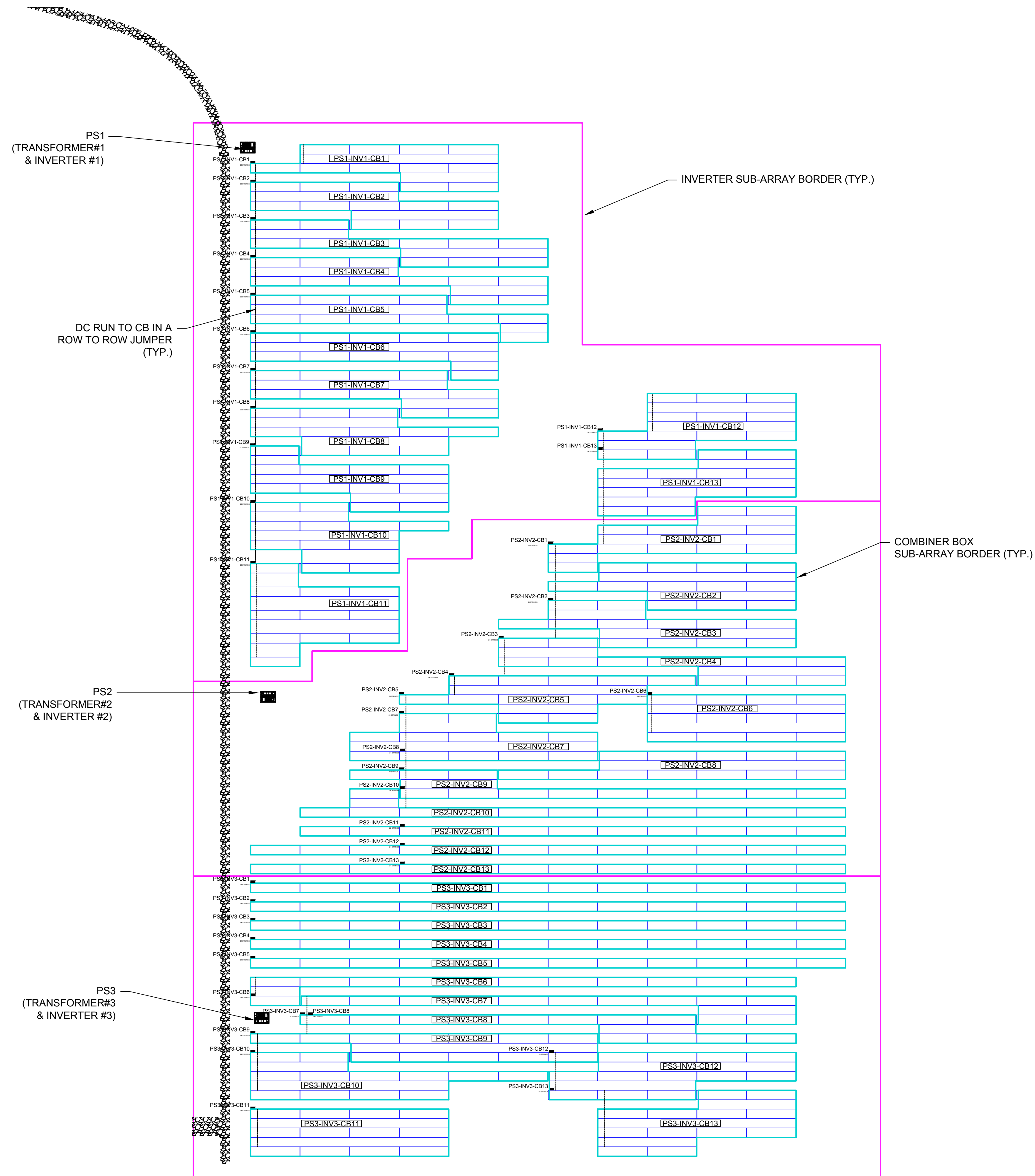
SYSTEM DESIGNER

SYSTEM OWNER

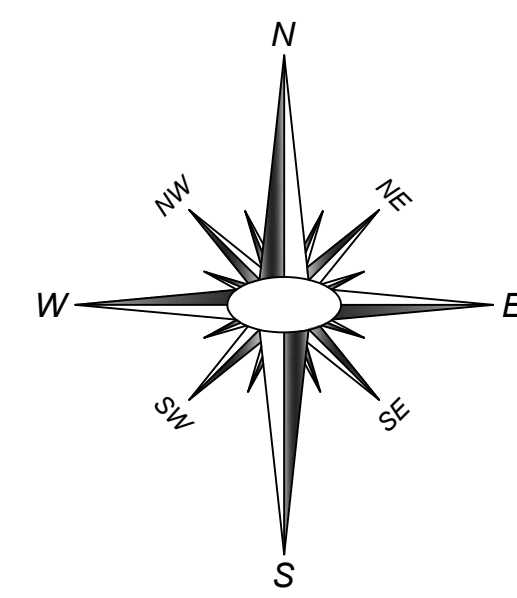
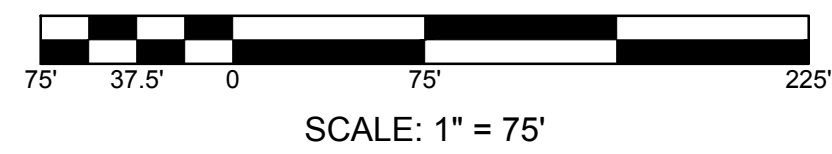
PROJECT NAME AND ADDRESS
 SHUTESBURY GROUND MOUNT
 PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

SHEET TITLE
 DC FEEDER PLAN
 SHEET 4

ENGINEER: EDGAR PUESAN	DRAWN BY: X.WENG
PROJECT NO: 1620400	SHEET NO. E-204
CREATION DATE: 10/04/2016	
SCALE: AS NOTED	



1 OVERALL DC FEEDER PLAN



Rev	Description	Date	Dwn	Chk
1	REVISED ROAD PATH	02/13/2017	EP	EP
0	PERMIT SET	12/05/2016	EP	EP

DESIGNERS SEAL AND SIGN

2-15-2017

SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS

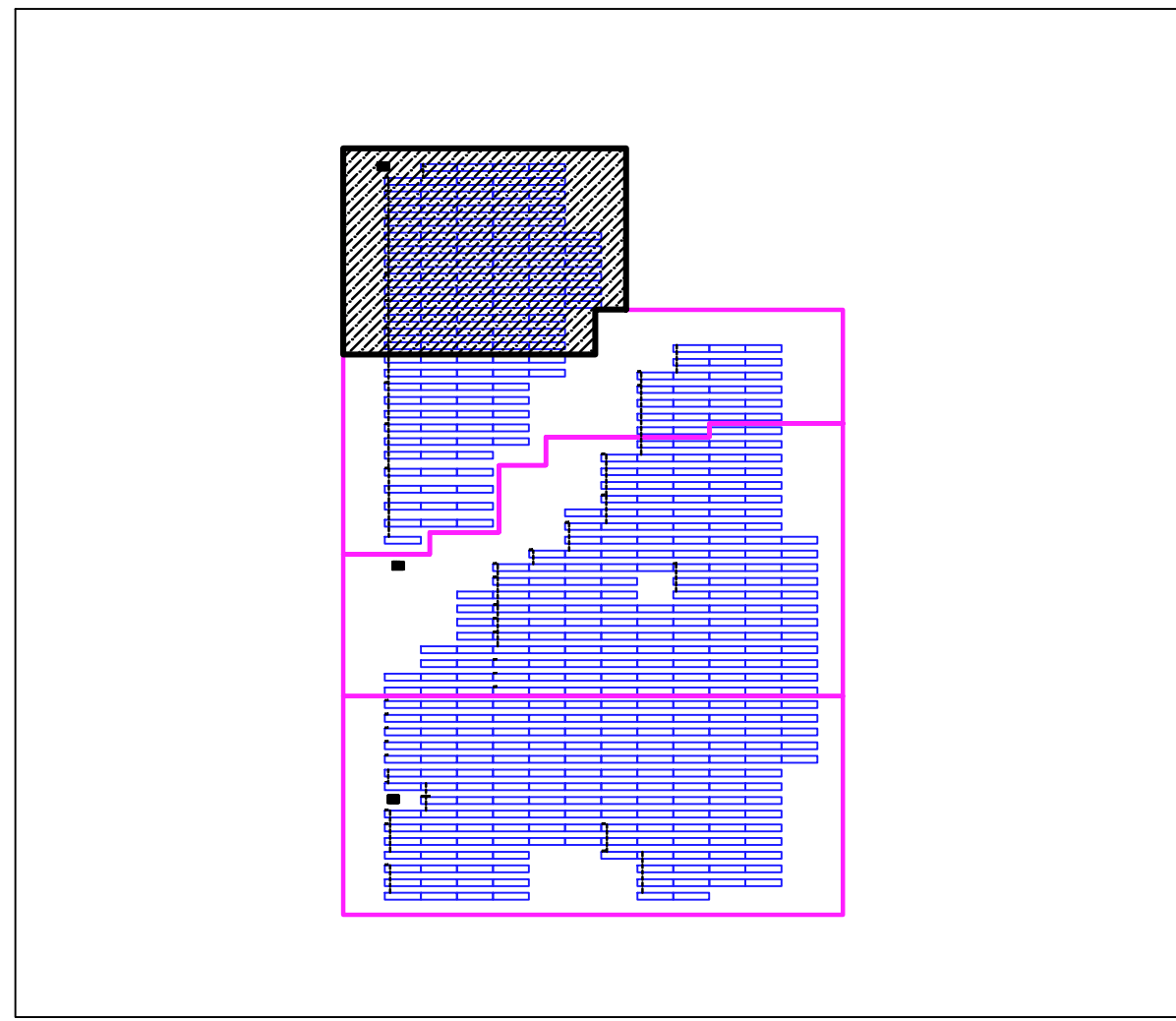
SHUTESBURY GROUND MOUNT

PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

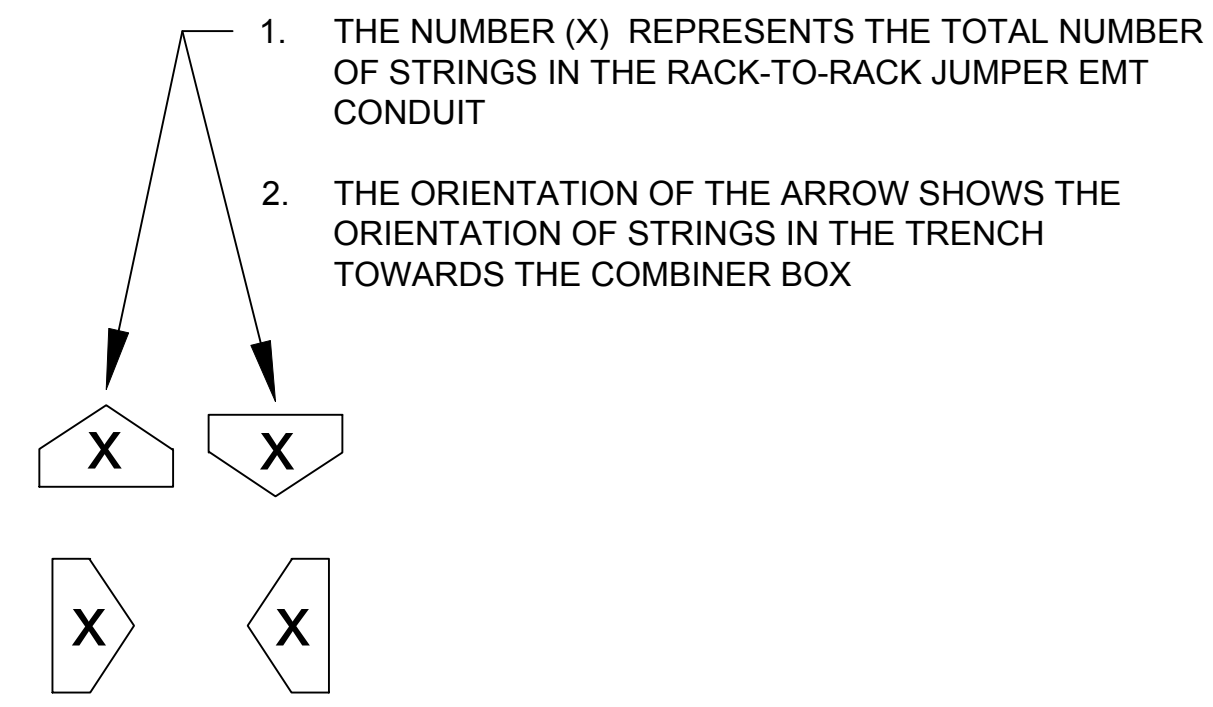
SHEET TITLE

OVERALL DC STRING WIRING

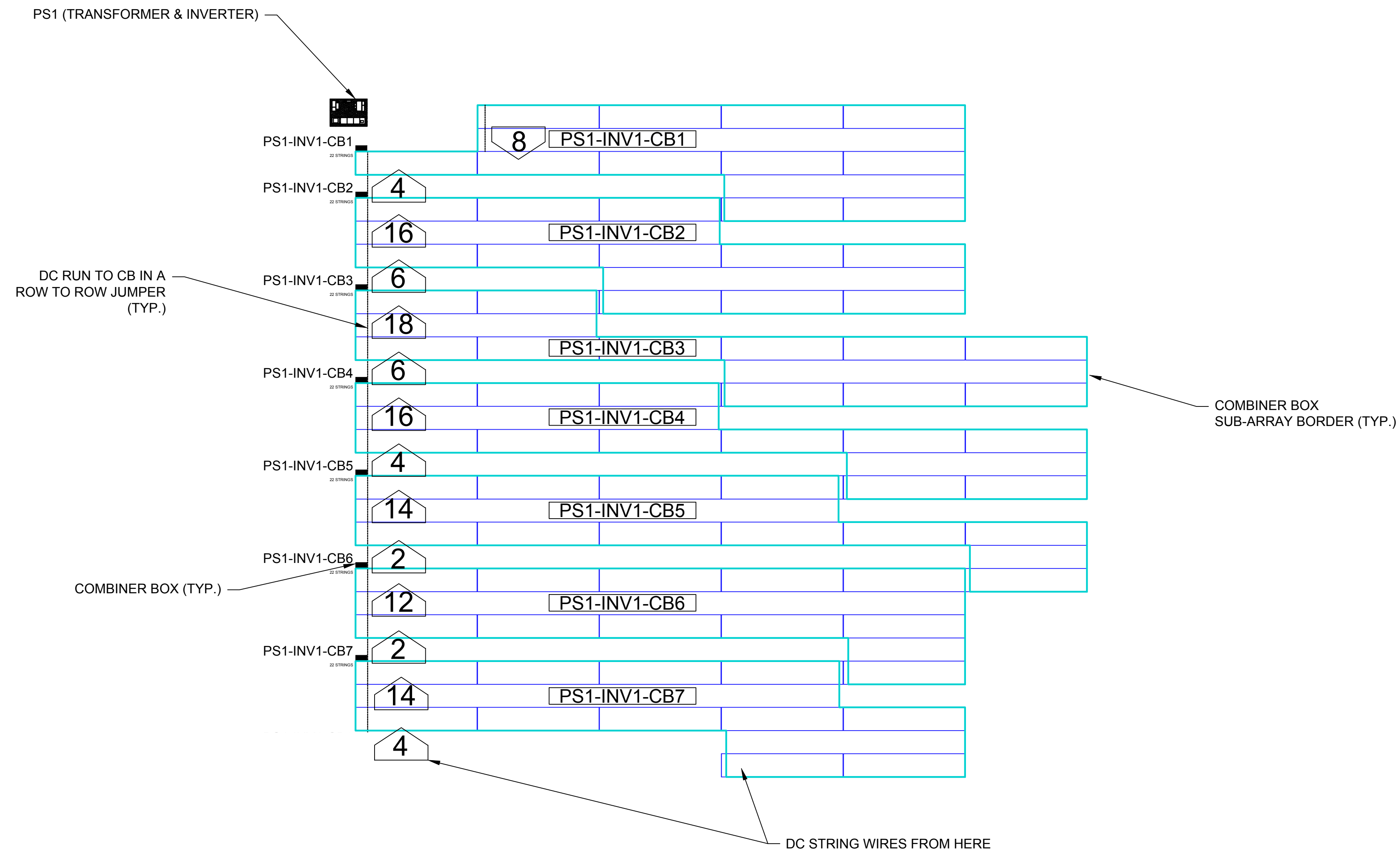
ENGINEER: EDGAR PUESAN	DRAWN BY: X.WENG
PROJECT NO: 1620400	SHEET NO. E-210
CREATION DATE: 10/04/2016	
SCALE: AS NOTED	



KEY PLAN
SCALE: NTS

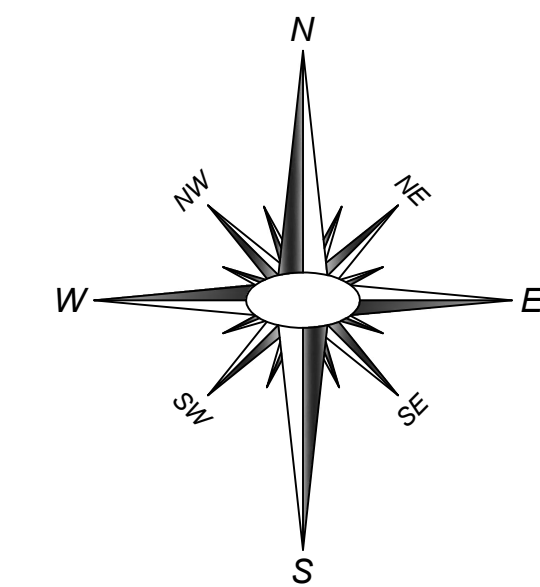
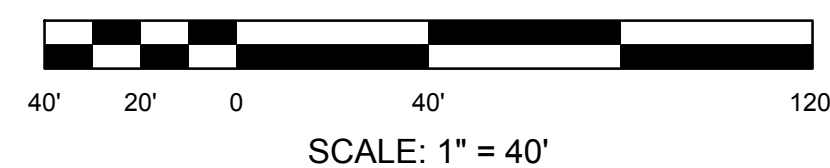


- NOTES:
1. SELECTED WIRE VENDOR TO PROVIDE DRAWINGS ON DETAILS OF WIRING TO STRINGS.
 2. COMBINER BOX LOCATIONS SHOWN ARE FOR REFERENCE PURPOSE ONLY.



CONTINUED ON DWG E-212

1 DC STRING WIRING
E-211



Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP

DESIGNER'S SEAL AND SIGN

12-07-2016

SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS

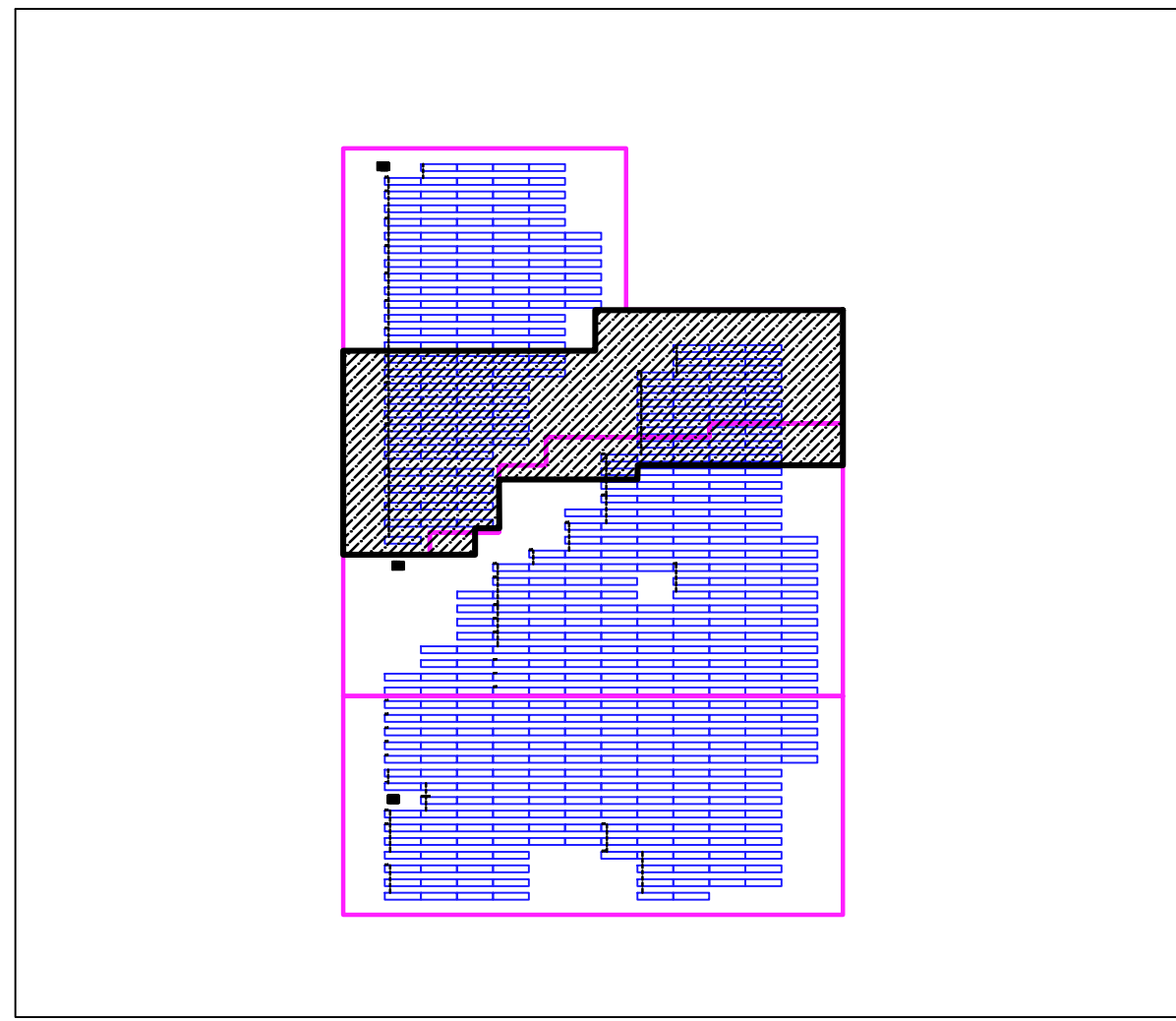
SHUTESBURY GROUND MOUNT

PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

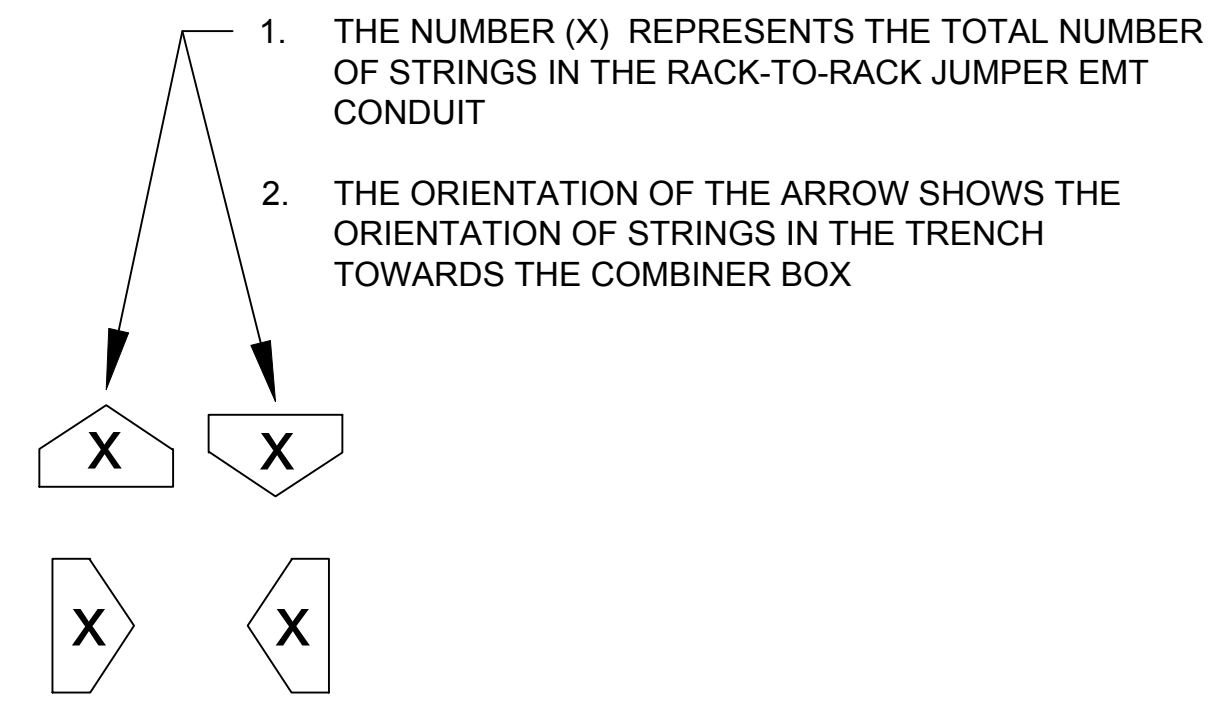
SHEET TITLE

DC STRING WIRING SHEET 1

ENGINEER: EDGAR PUESAN	DRAWN BY: X.WENG
PROJECT NO: 1620400	SHEET NO. E-211
CREATION DATE: 10/04/2016	
SCALE: AS NOTED	

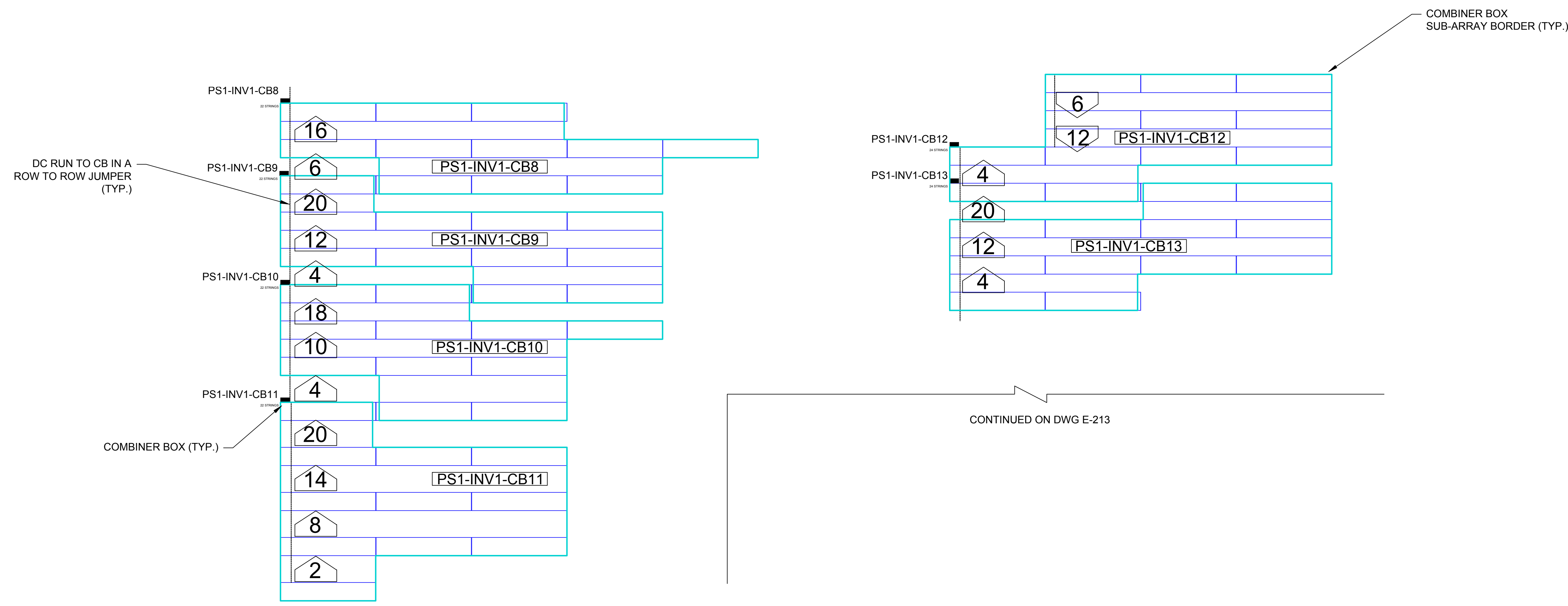


KEY PLAN
SCALE: NTS



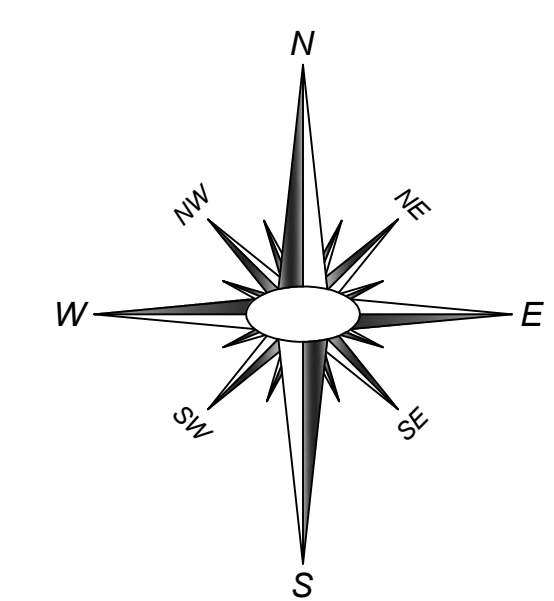
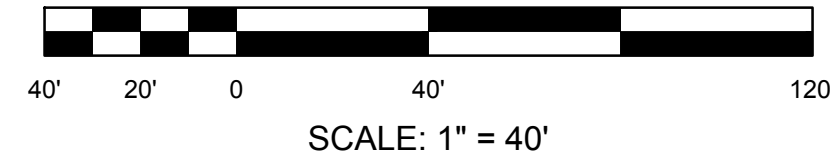
- NOTES:
1. SELECTED WIRE VENDOR TO PROVIDE DRAWINGS ON DETAILS OF WIRING TO STRINGS.
 2. COMBINER BOX LOCATIONS SHOWN ARE FOR REFERENCE PURPOSE ONLY.

CONTINUED ON DWG E-211

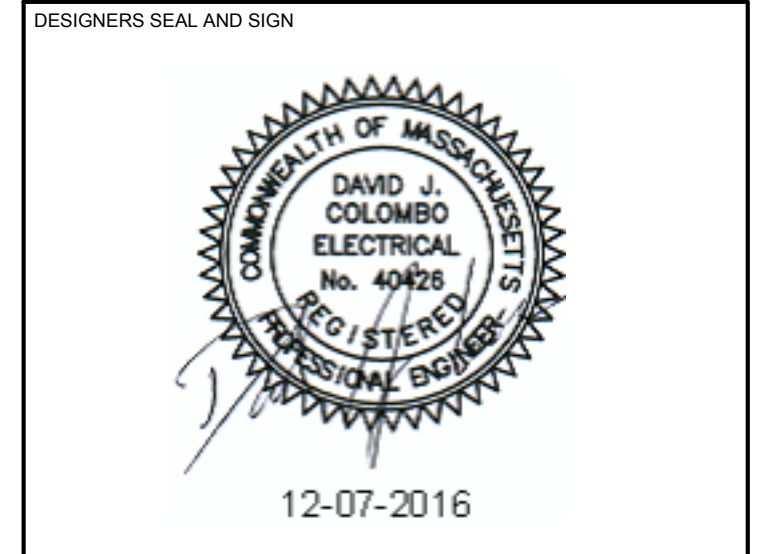


CONTINUED ON DWG E-213

1 DC STRING WIRING
E-212



Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP



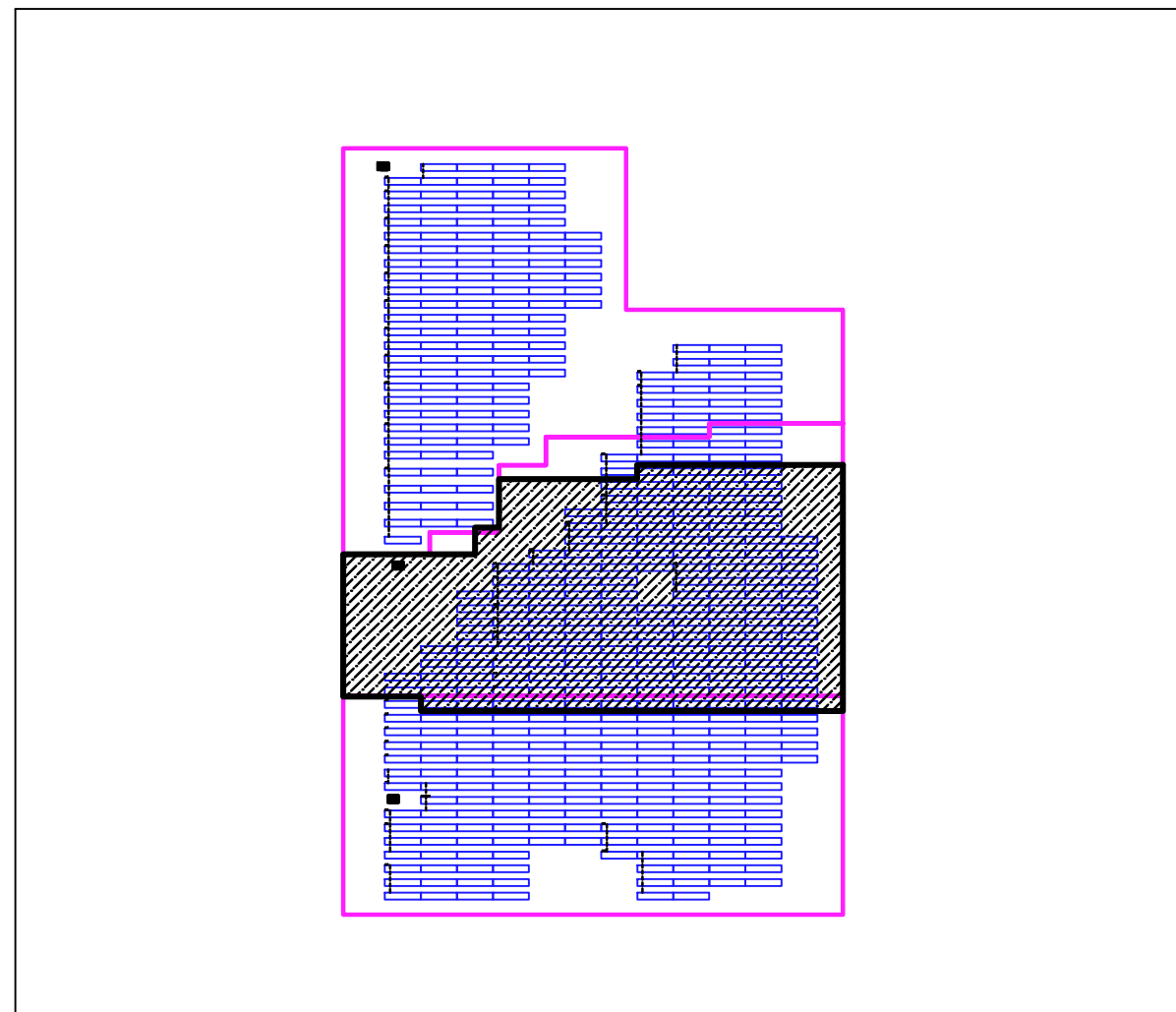
SYSTEM DESIGNER

SYSTEM OWNER

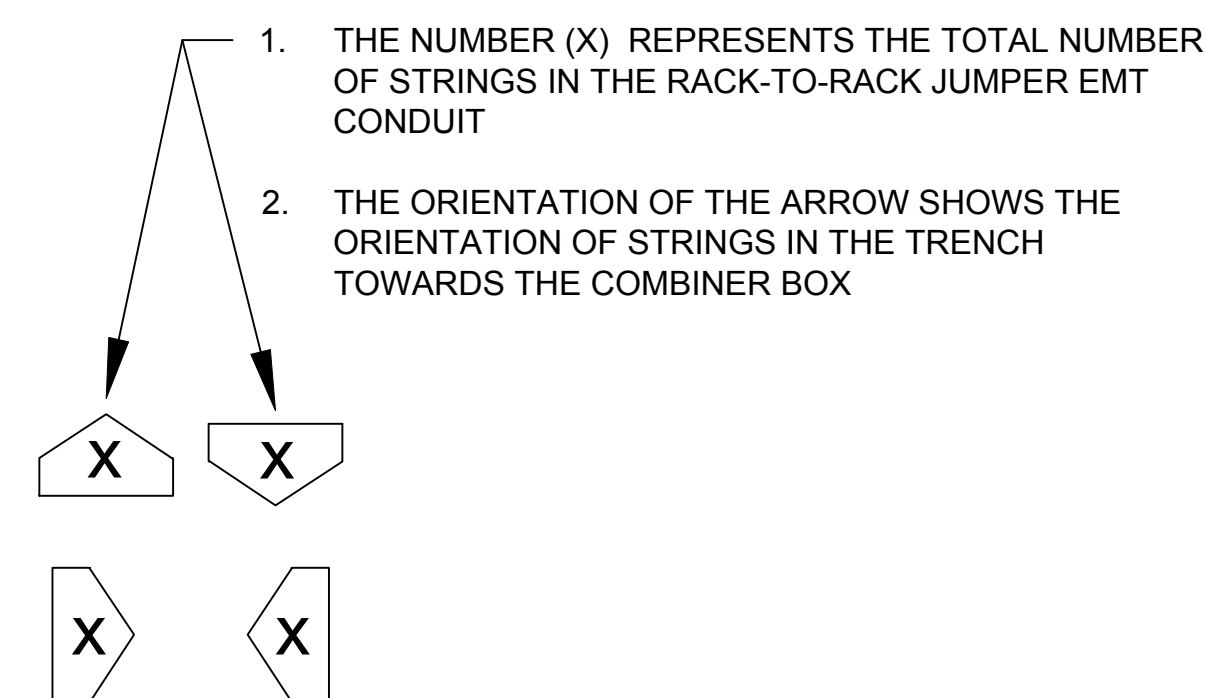
PROJECT NAME AND ADDRESS
SHUTESBURY GROUND MOUNT
PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

SHEET TITLE
DC STRING WIRING
SHEET 2

ENGINEER: EDGAR PUESAN	DRAWN BY: X.WENG
PROJECT NO: 1620400	SHEET NO. E-212
CREATION DATE: 10/04/2016	
SCALE: AS NOTED	



KEY PLAN
SCALE: NTS

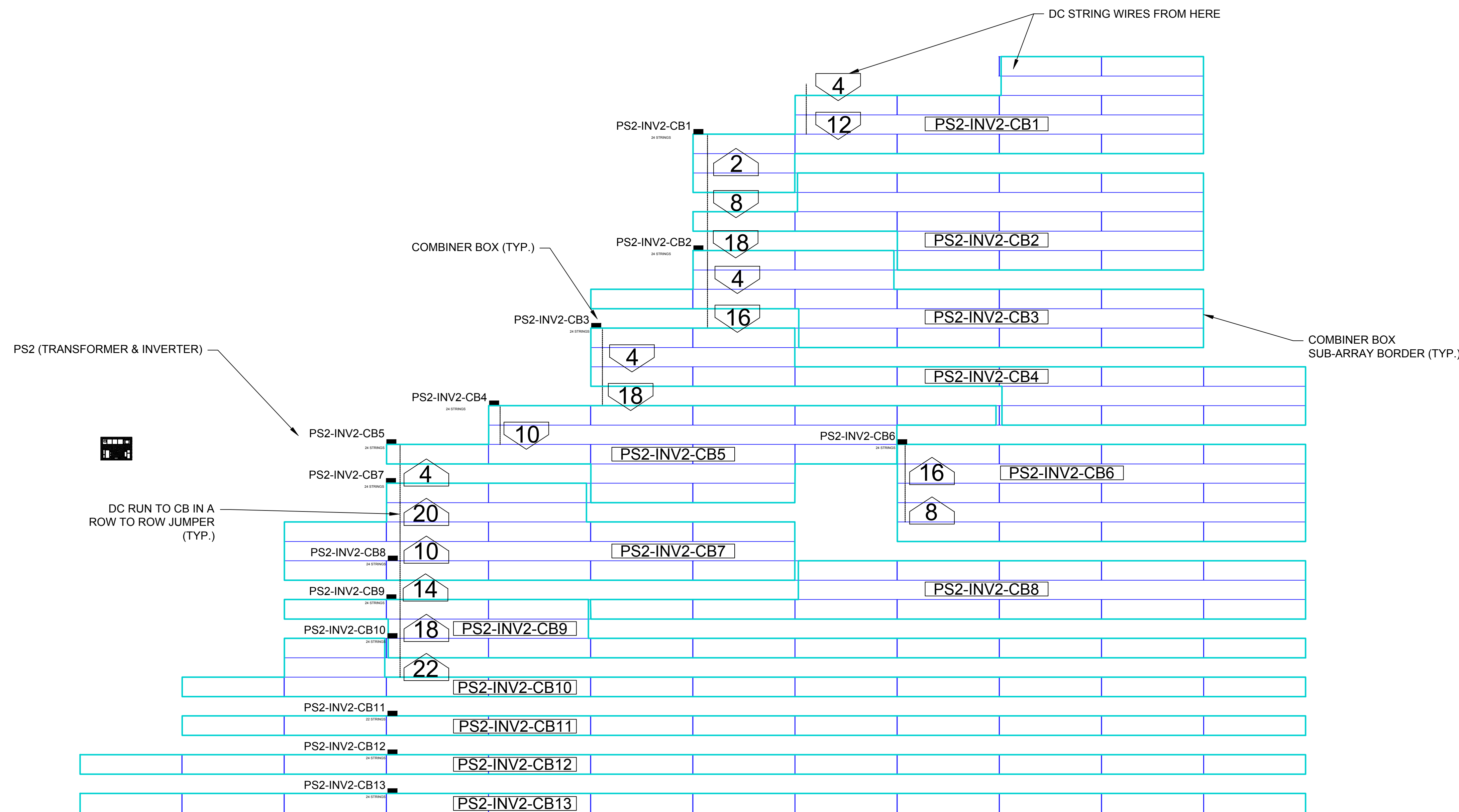


1. THE NUMBER (X) REPRESENTS THE TOTAL NUMBER OF STRINGS IN THE RACK-TO-RACK JUMPER EMT CONDUIT
2. THE ORIENTATION OF THE ARROW SHOWS THE ORIENTATION OF STRINGS IN THE TRENCH TOWARDS THE COMBINER BOX

CONTINUED ON DWG E-211

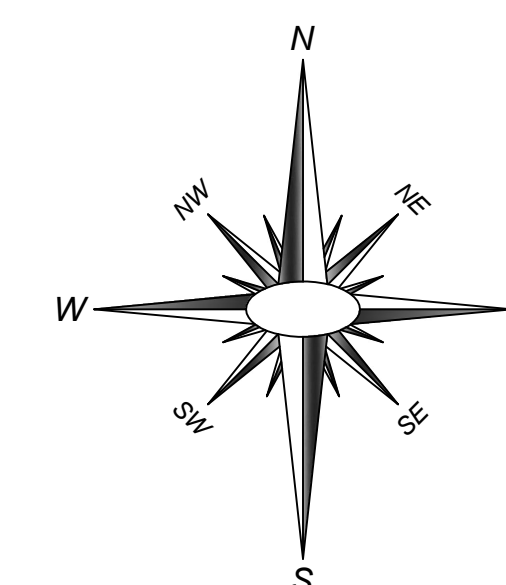
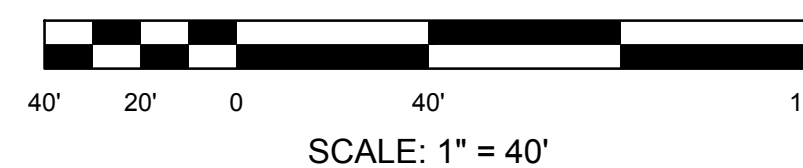
NOTES:

1. SELECTED WIRE VENDOR TO PROVIDE DRAWINGS ON DETAILS OF WIRING TO STRINGS.
2. COMBINER BOX LOCATIONS SHOWN ARE FOR REFERENCE PURPOSE ONLY.



CONTINUED ON DWG E-213

1 DC STRING WIRING
E-213



Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP



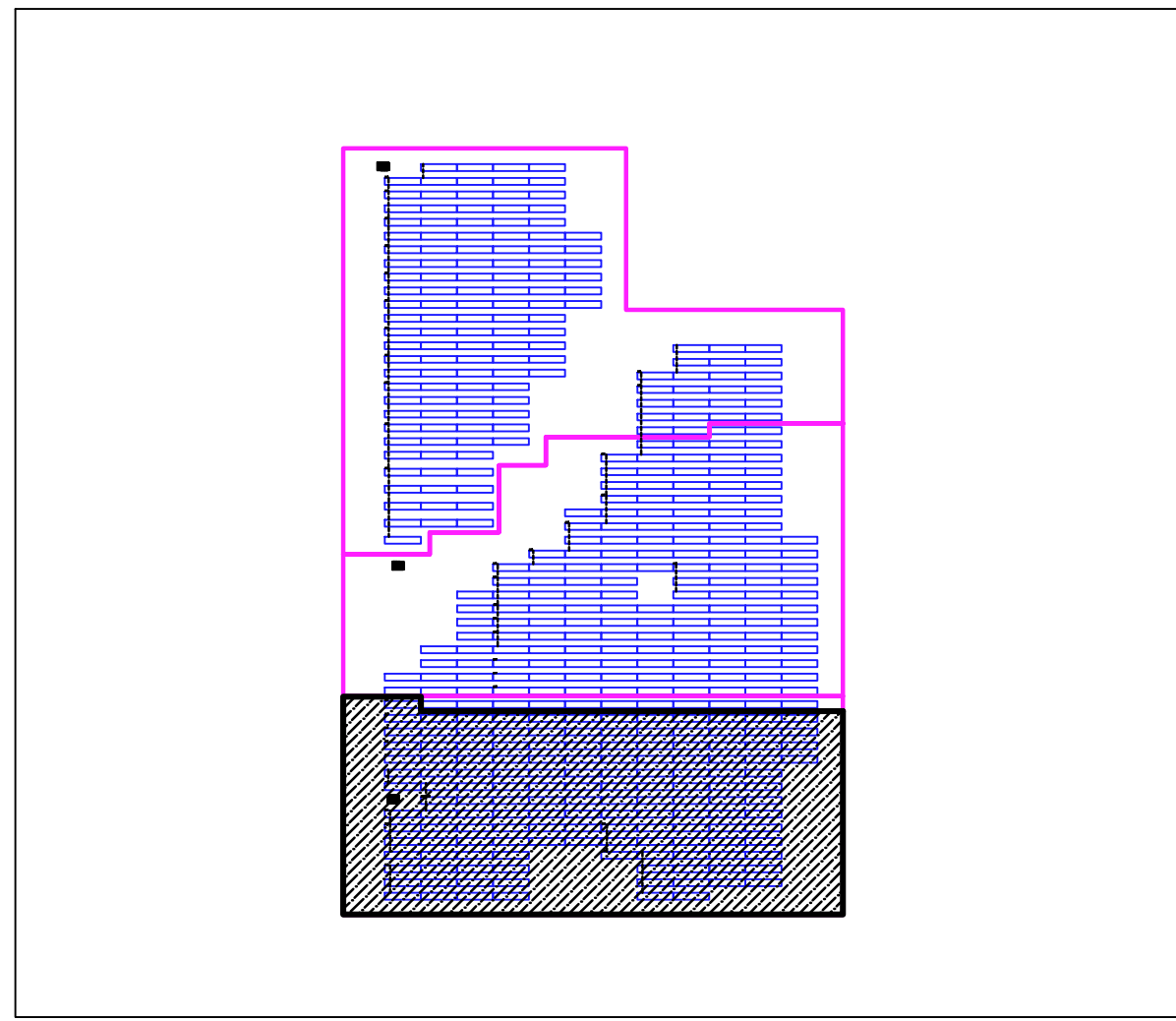
SYSTEM DESIGNER

SYSTEM OWNER

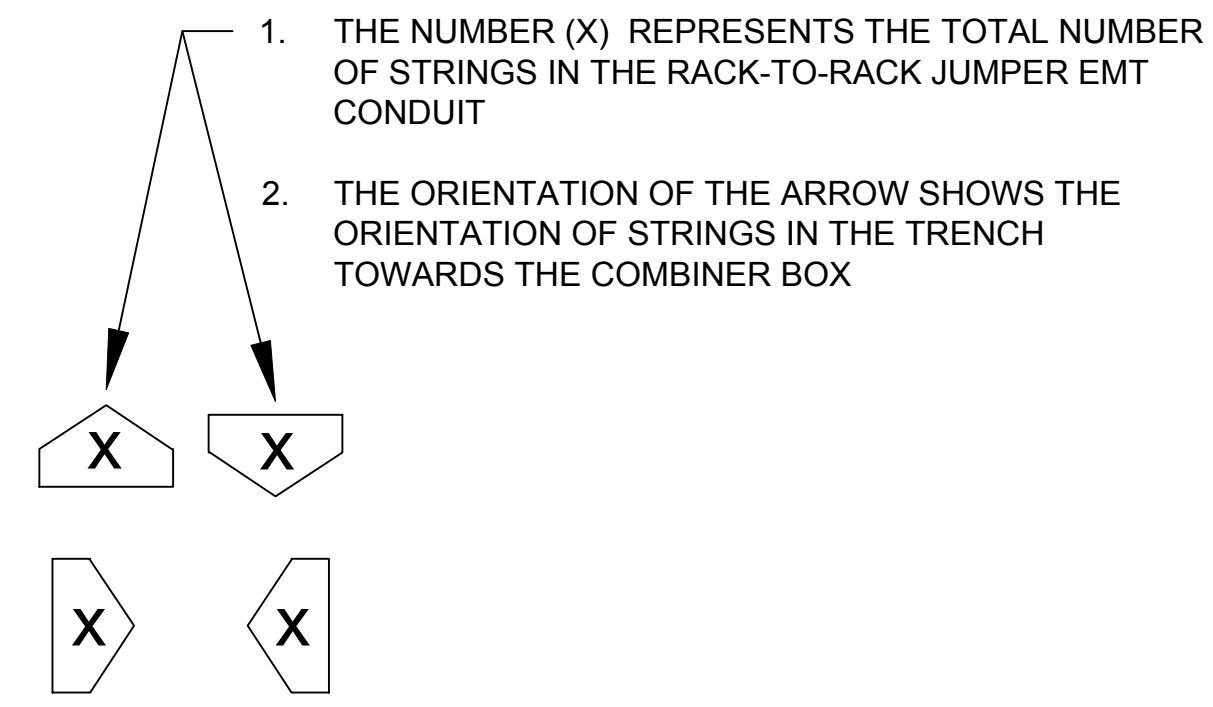
PROJECT NAME AND ADDRESS
SHUTESBURY GROUND MOUNT
PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

SHEET TITLE
DC STRING WIRING
SHEET 3

ENGINEER: EDGAR PUESAN	DRAWN BY: X.WENG
PROJECT NO: 1620400	SHEET NO. E-213
CREATION DATE: 10/04/2016	
SCALE: AS NOTED	

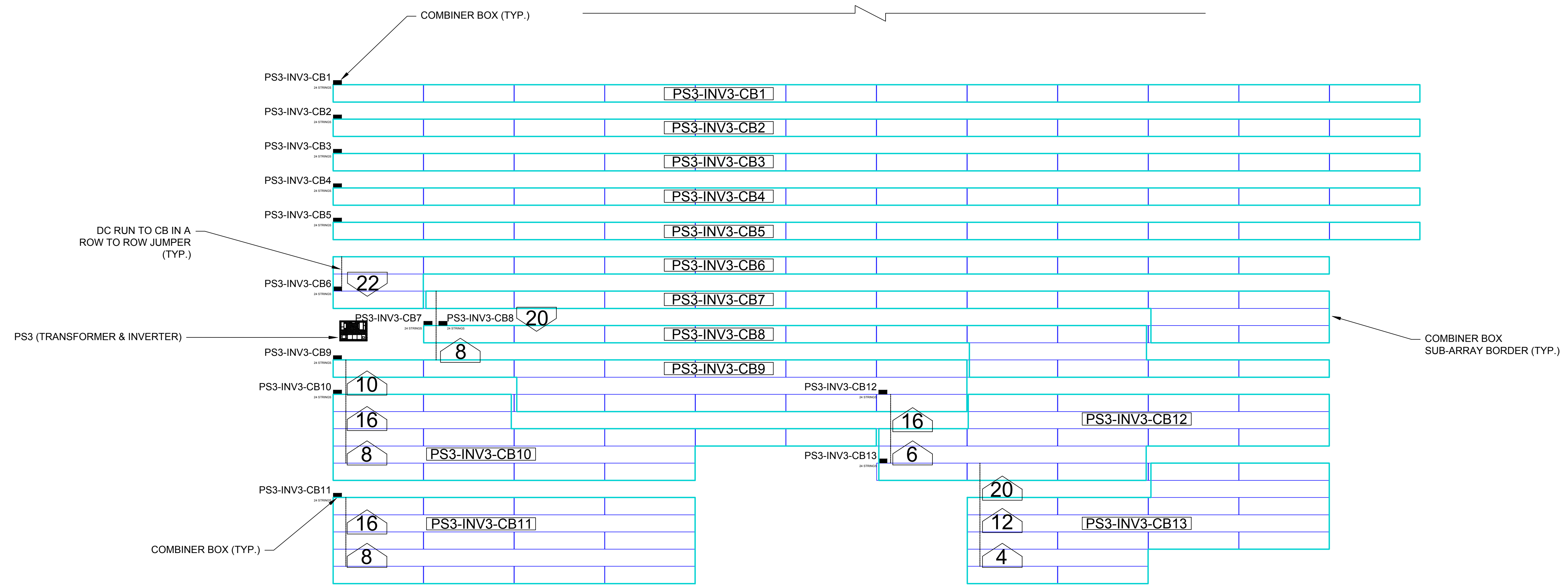


KEY PLAN
SCALE: NTS



- NOTES:
1. SELECTED WIRE VENDOR TO PROVIDE DRAWINGS ON DETAILS OF WIRING TO STRINGS.
 2. COMBINER BOX LOCATIONS SHOWN ARE FOR REFERENCE PURPOSE ONLY.

CONTINUED ON DWG E-213



Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP

DESIGNER'S SEAL AND SIGN

12-07-2016

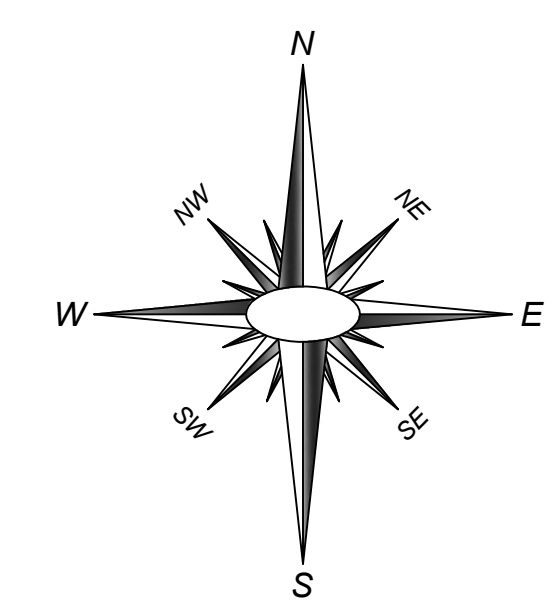
SYSTEM DESIGNER

SYSTEM OWNER

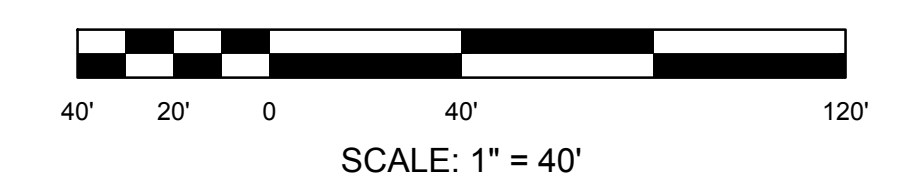
PROJECT NAME AND ADDRESS
SHUTESBURY GROUND MOUNT
PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

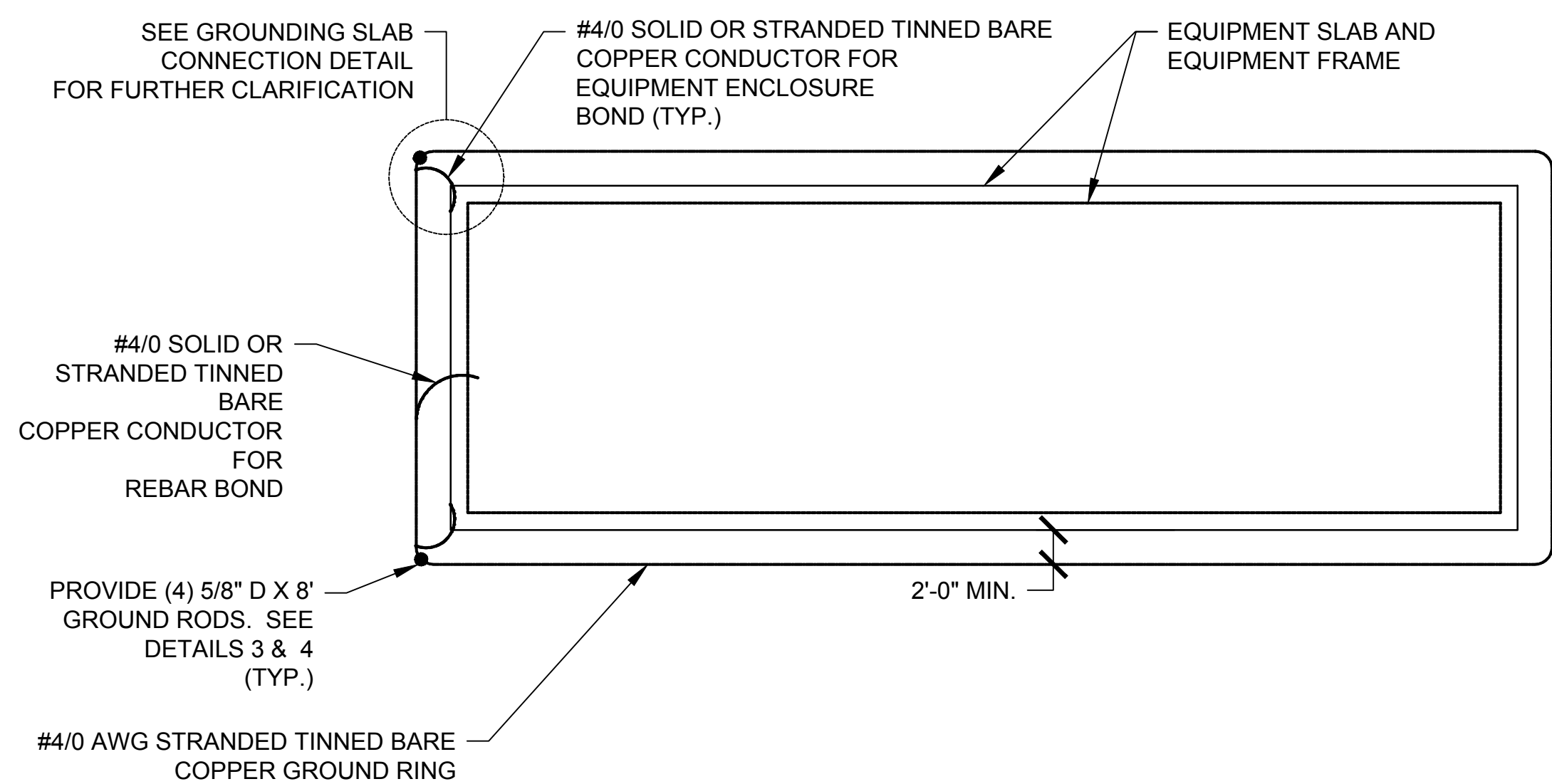
SHEET TITLE
DC STRING WIRING
SHEET 4

ENGINEER: EDGAR PUESAN	DRAWN BY: X.WENG
PROJECT NO: 1620400	SHEET NO. E-214
CREATION DATE: 10/04/2016	
SCALE: AS NOTED	

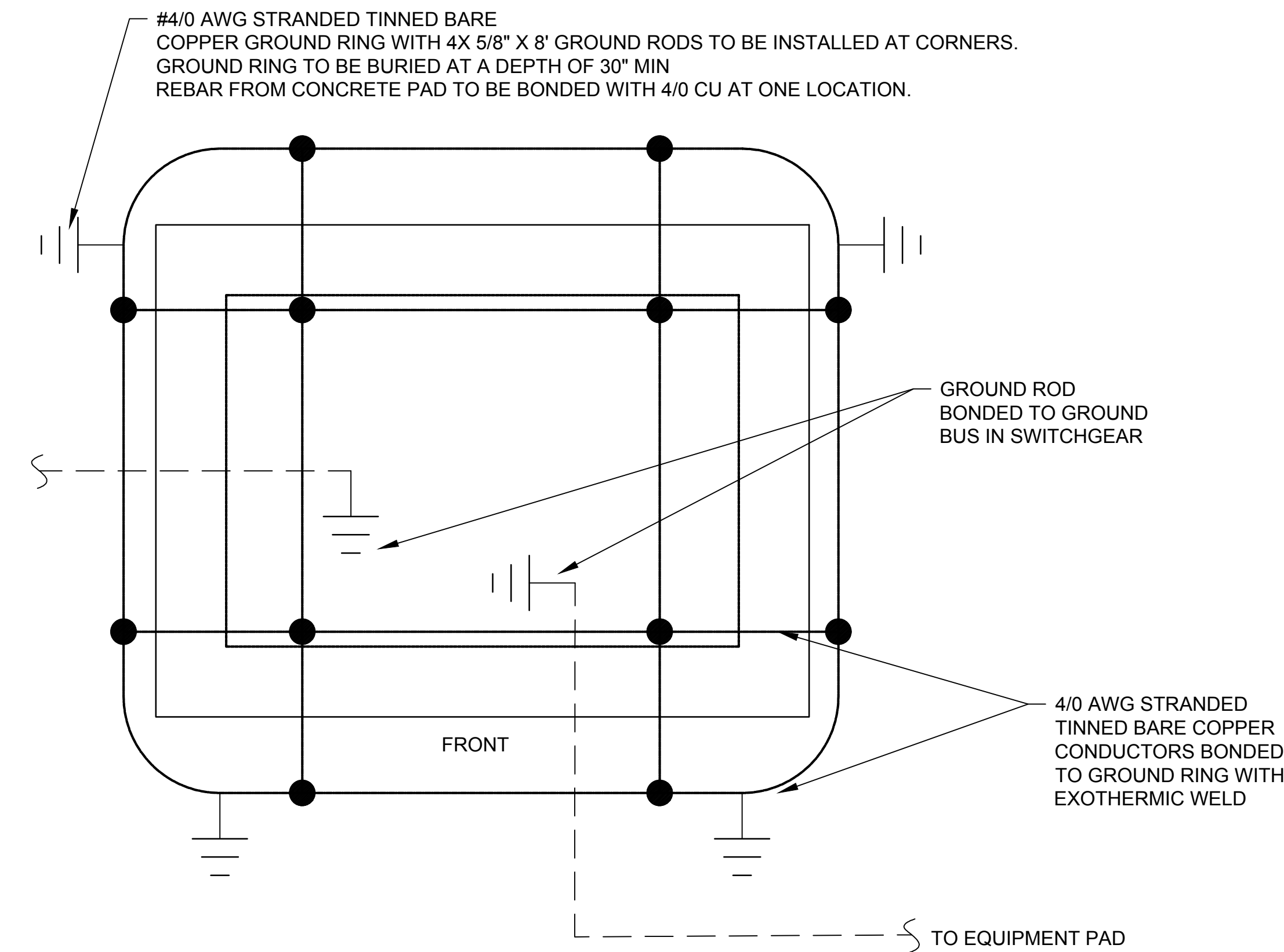


1 DC STRING WIRING
E-214

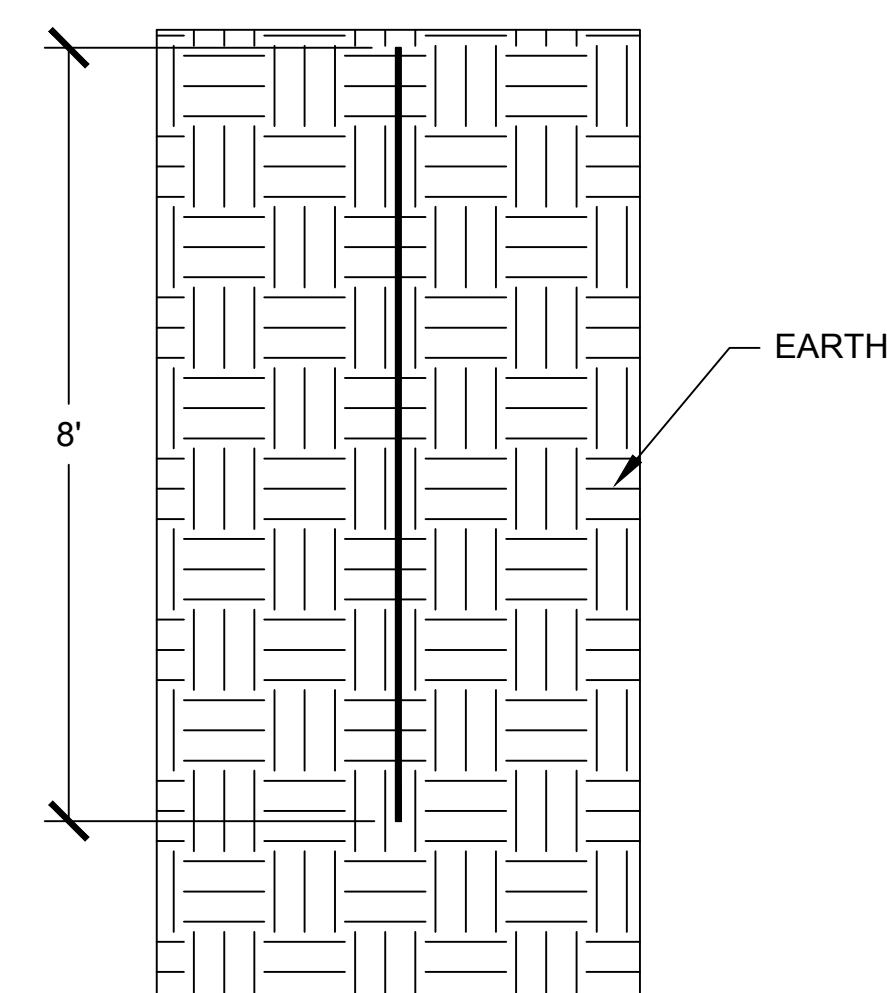




1 EQUIPMENT PAD GROUNDING DETAIL
 E-300 SCALE: N.T.S.



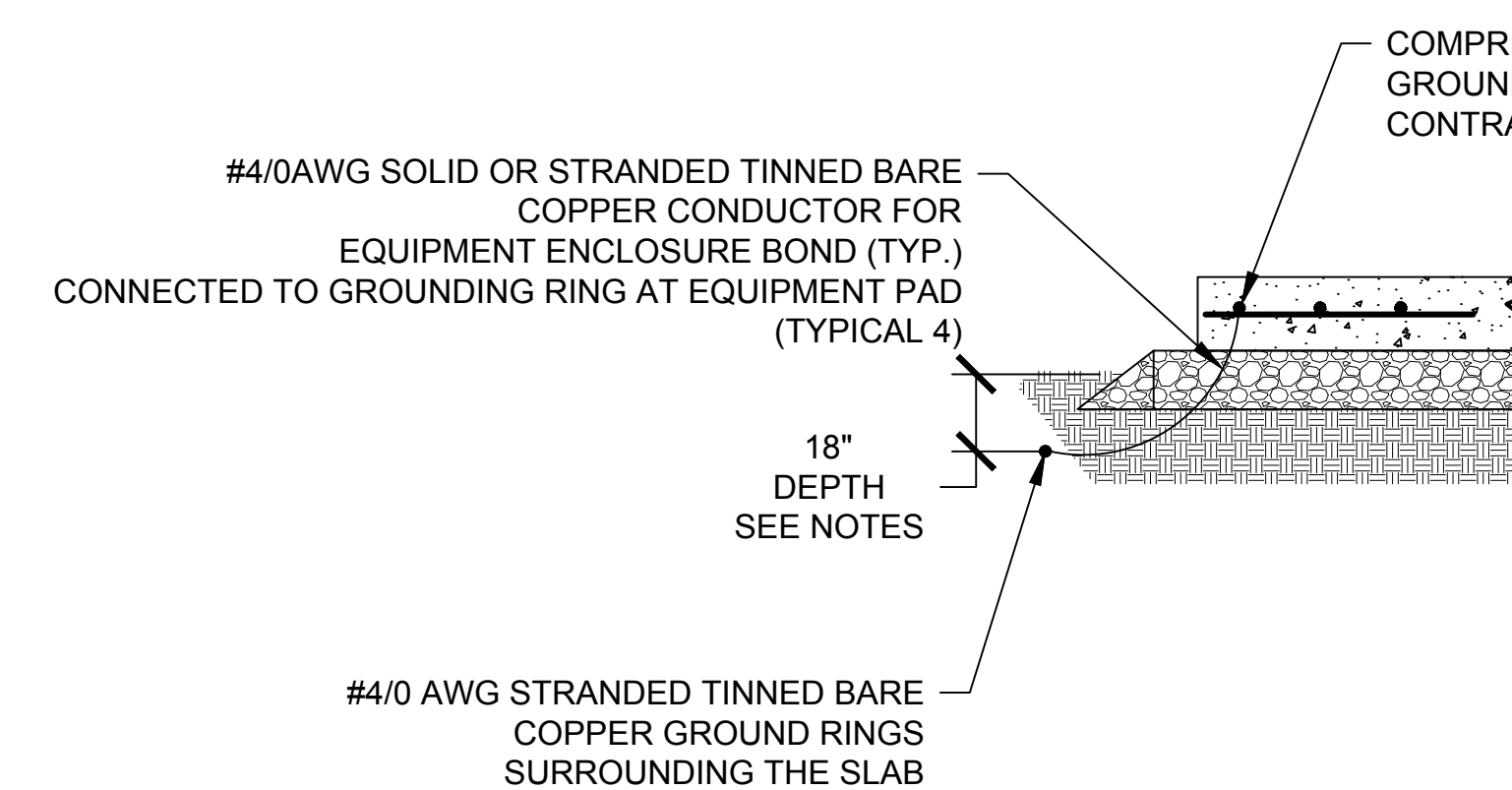
2 SWITCHGEAR GROUNDING
 E-300 SCALE: N.T.S.



NOTES:

1. GROUNDING RESISTANCE IS TO BE AS FOLLOWS: AROUND THE SWITCHGEAR AND EQUIPMENT PADS TO BE LESS THAN 5 OHMS AND UTILITY POLE GROUND RODS TO BE 25 OHMS OR LESS.
2. IF GROUNDING RESISTANCE VALUES CANNOT BE OBTAIN, INSTALL ADDITIONAL GROUNDING ELECTRODES AND RE-TEST.

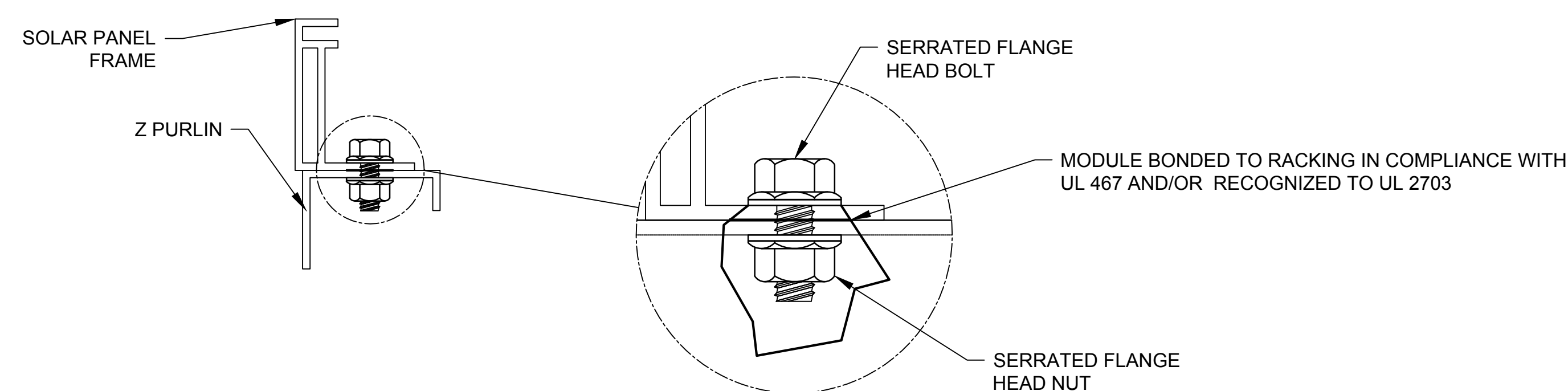
3 GROUND ROD INSTALLATION
 E-300 SCALE: N.T.S.



NOTES:

1. GROUND RING IS TO BE 30" BELOW GRADE (BELOW PERM MOISTURE LEVEL).
2. GROUNDING RESISTANCE IS TO BE 5 OHMS OR LESS.
3. IF GROUNDING RESISTANCE VALUES CANNOT BE OBTAINED, INSTALL ADDITIONAL GROUNDING ELECTRODES AND RE-TEST.
4. GEM MAY BE USED.

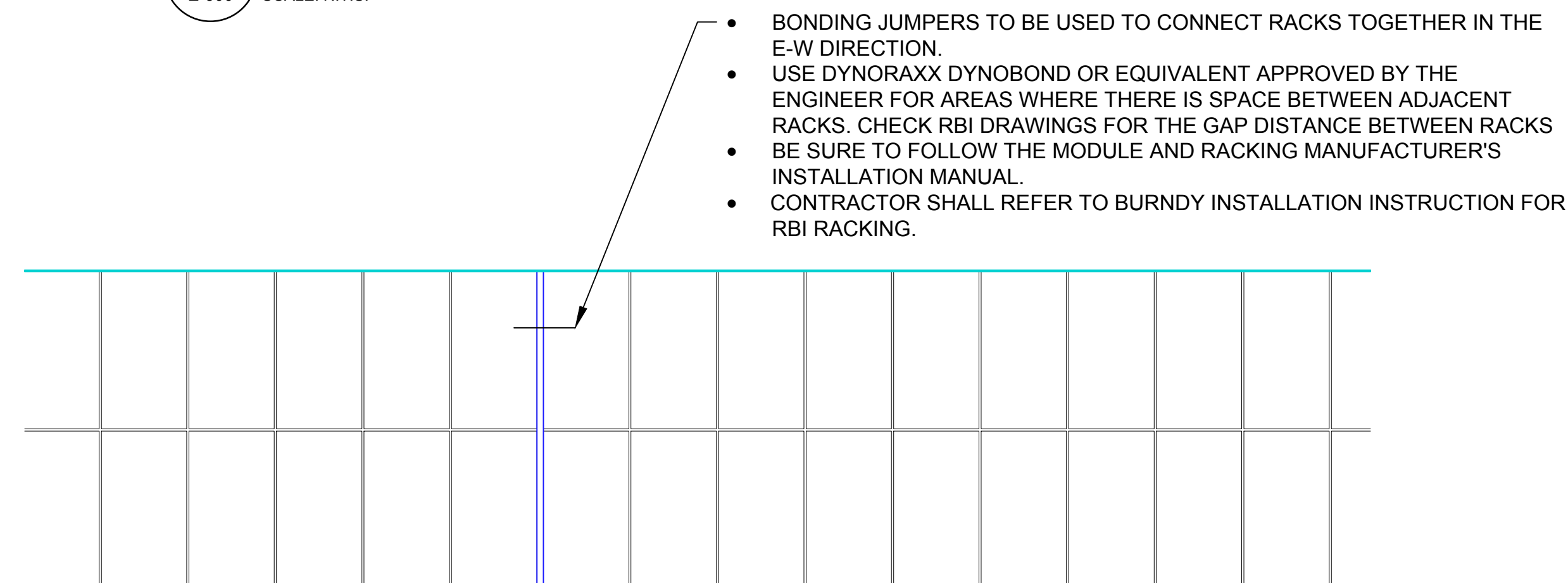
4 EQUIPMENT PAD GROUNDING SLAB CONNECTION DETAIL
 E-300 SCALE: N.T.S.



5 MODULE BONDING/GROUNDING
 E-300 SCALE: N.T.S.

NOTES:

1. BE SURE TO FOLLOW THE MODULE AND RACKING MANUFACTURER'S INSTALLATION MANUAL.
2. CONTRACTOR SHALL REFER TO BURNDY INSTALLATION INSTRUCTION FOR RBI RACKING.
3. MODULES ARE BONDED TO THE PURLIN ON RBI'S RACKING SYSTEM USING WEEB-11.5 WASHER PER UL 2703. BONDING PATH CONTINUES FROM PURLIN TO COMBINER BOX - SEE DWG E-302 DETAILS 2 AND 3.



6 RACK TO RACK GROUNDING
 E-300 SCALE: N.T.S.

Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP

DESIGNERS SEAL AND SIGN



12-07-2016

SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS

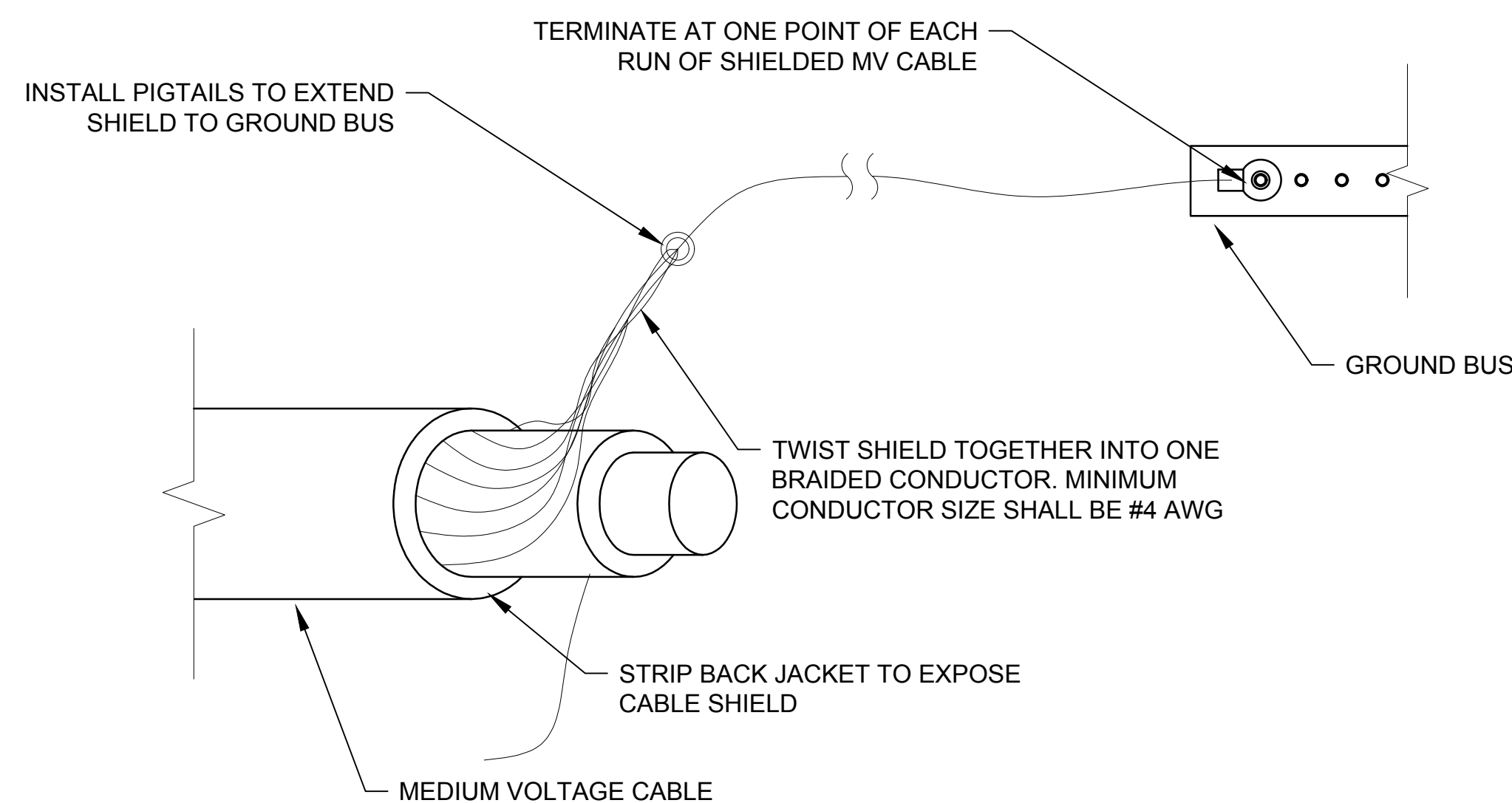
SHUTESBURY GROUND MOUNT

PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

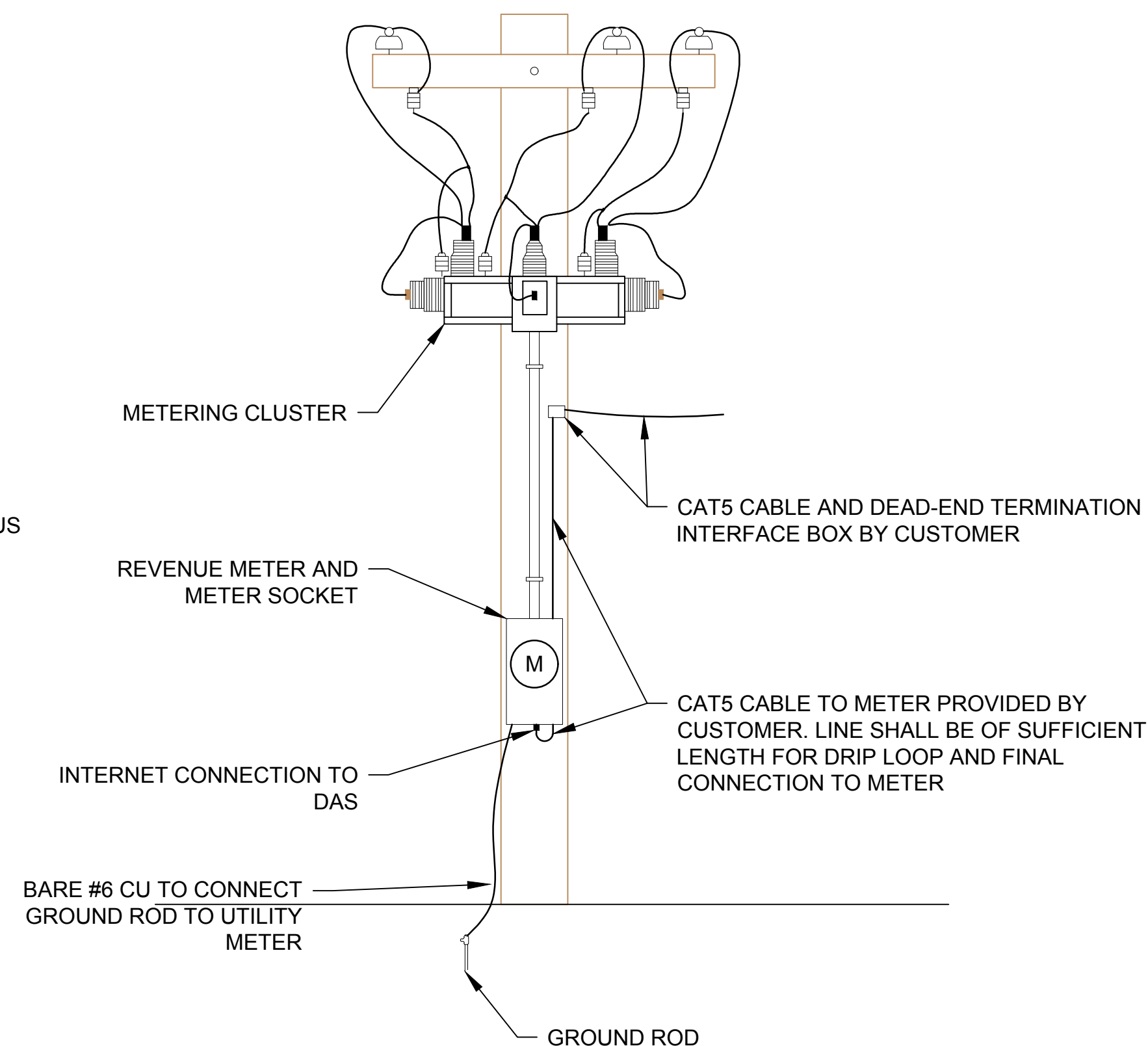
SHEET TITLE

GROUNDING DETAILS SHEET 1

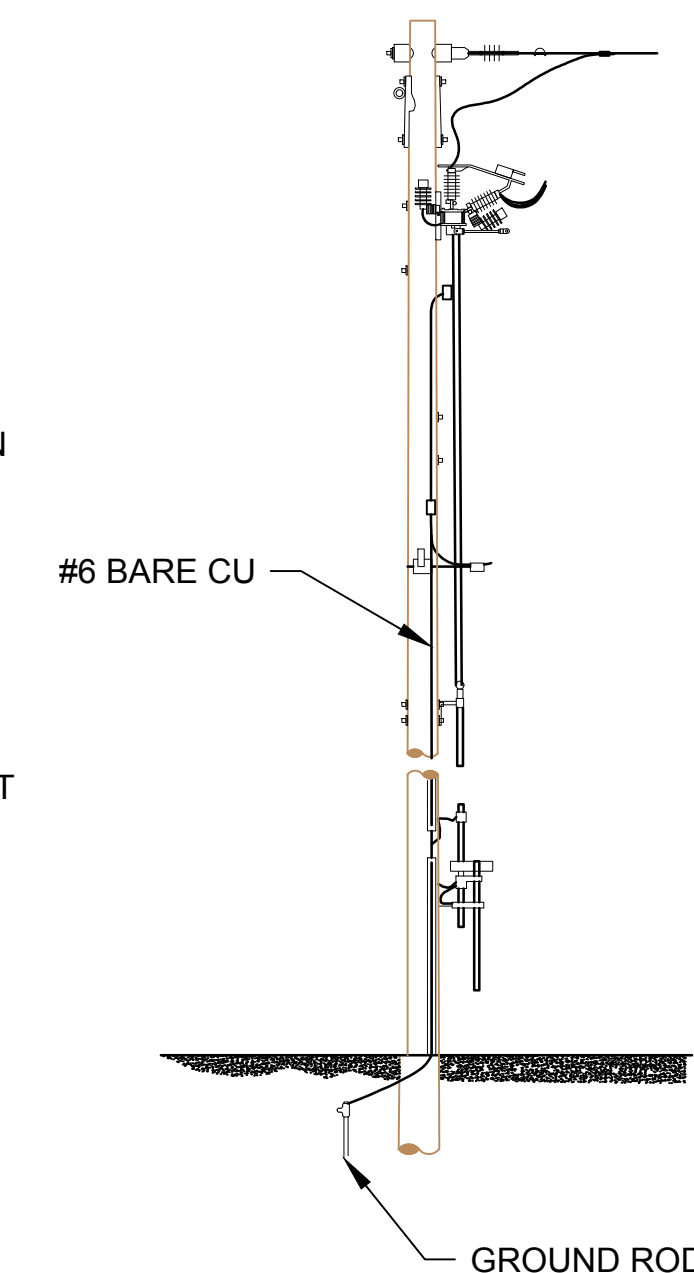
ENGINEER: EDGAR PUESAN	DRAWN BY: EDGAR PUESAN
PROJECT NO. 1620400	SHEET NO. E-300
CREATION DATE 10/04/2016	
SCALE AS NOTED	



1 MEDIUM VOLTAGE CABLE SHIELD GROUNDING
 E-301 SCALE: NTS



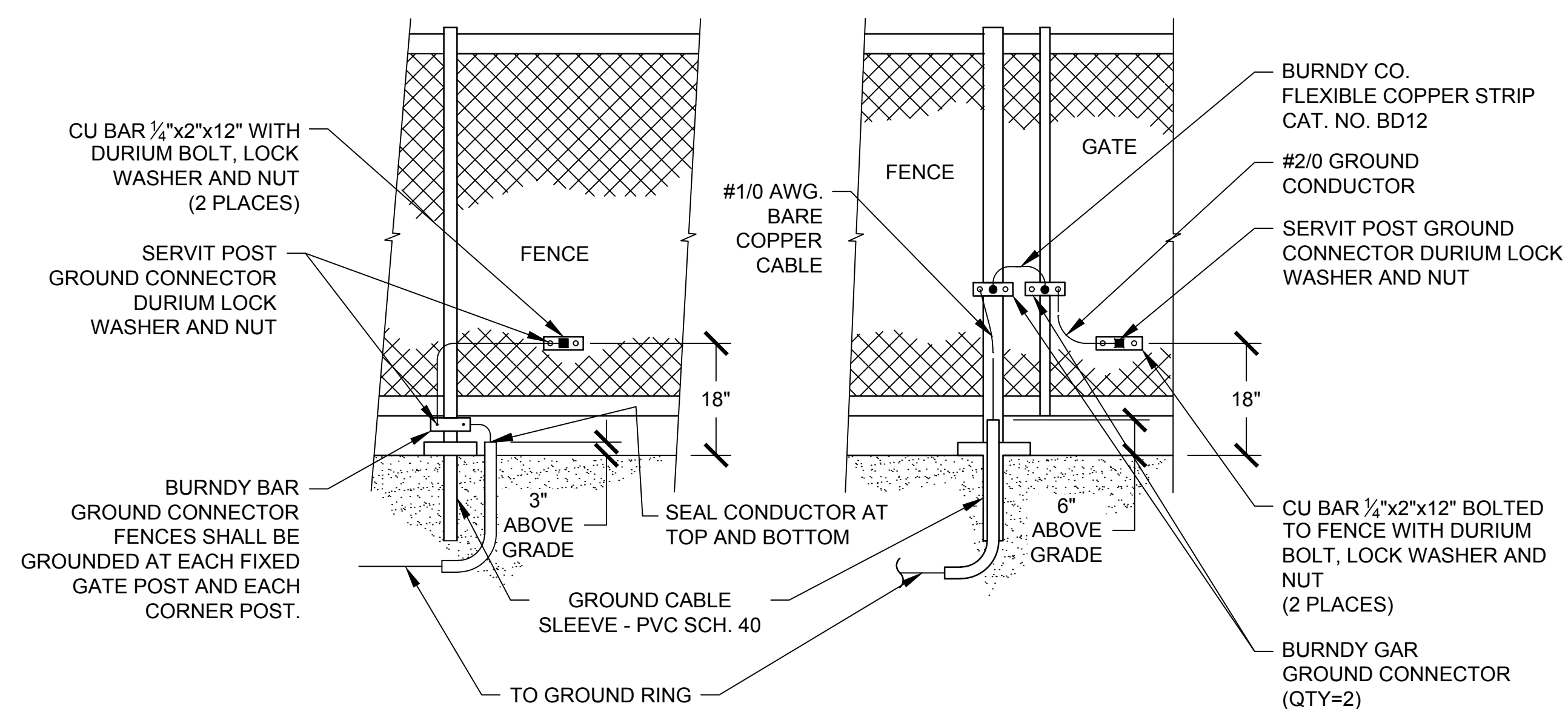
2 METER GROUNDING
 E-301 SCALE: NTS



3 OVERHEAD POLE GROUNDING
 E-301 SCALE: NTS

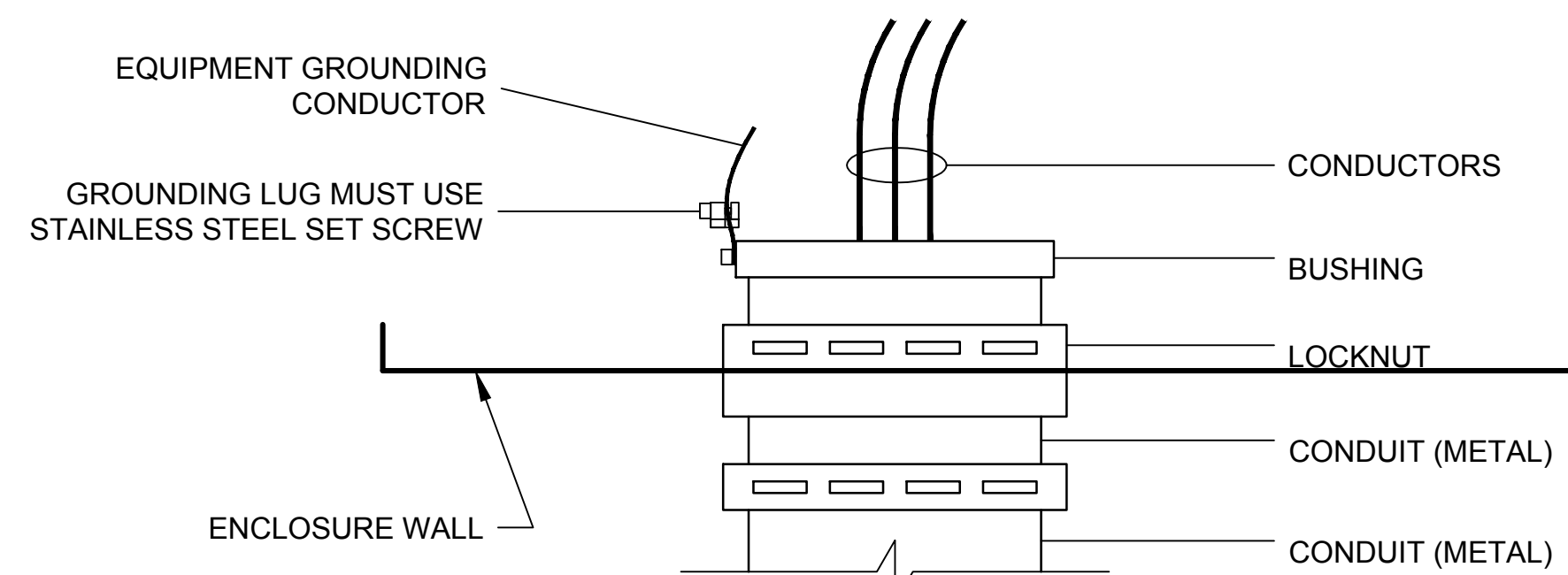
**LOADBREAK WITH ARRESTORS
 POLE DETAIL AT OVERHEAD
 POLE**

- NOTES
1. THE SURGE ARRESTERS SHALL BE INSTALLED ONTO THE LOAD SIDE PROTECTING BOTH SWITCH AND TERMINATORS.
 2. USE STAINLESS STEEL BOLTS WHEN CONNECTING COPPER LUGS TO SWITCH PADS.
 3. USE 5/8" THRU BOLTS TO MOUNT OPERATING ROD GUIDES.
 4. USE 5/8" X 10' GROUND ROD
 5. USE #6 BARE CU TO CONNECT ARRESTORS TO GROUND ROD.

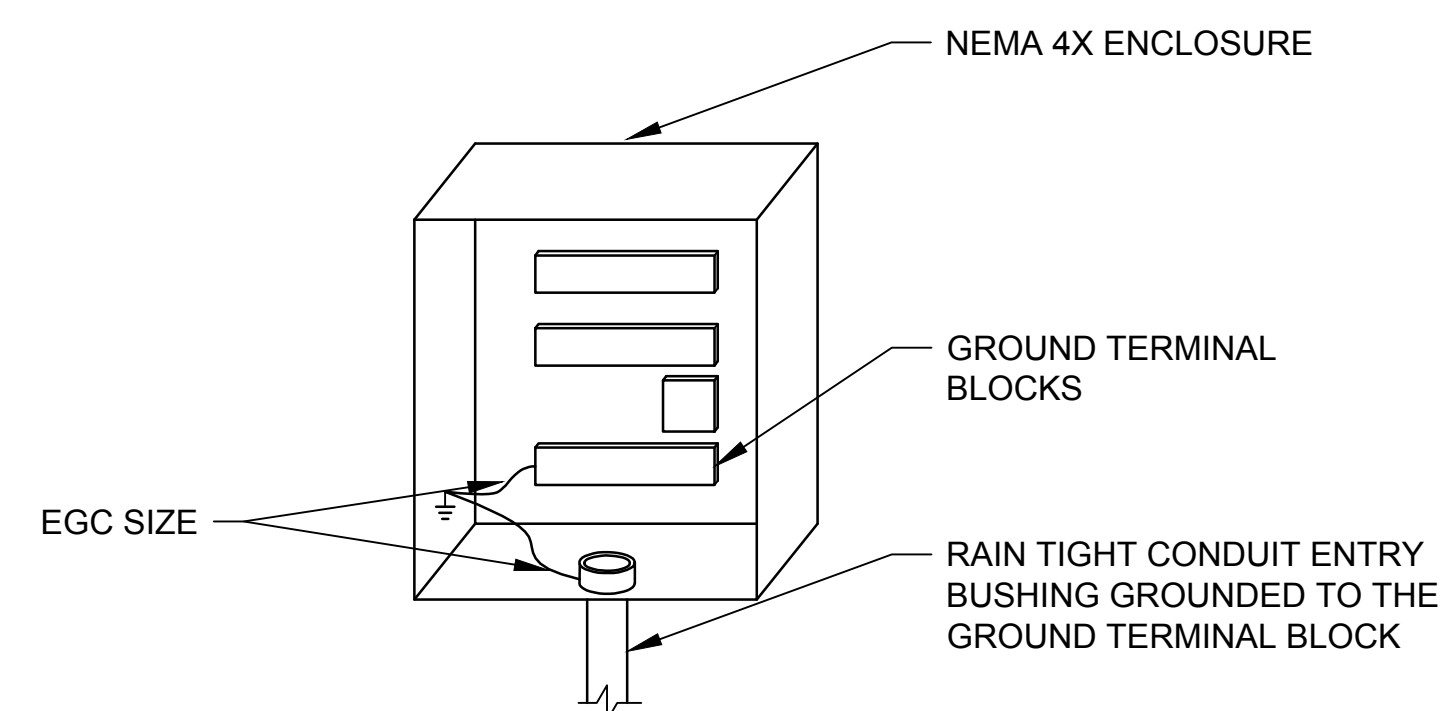


- NOTES
1. FENCE GROUNDING IS ONLY REQUIRED WHERE THE FENCE CROSSES UNDERGROUND OR OVERHEAD UTILITY LINES. FENCE SHALL BE GROUNDED AT A MIN. 20' ON EITHER SIDE OF THE ELECTRIC LINE.
 2. FENCE IS TO BE 7' HIGH OR 6' WITH 12" OF BARBED WIRE PER NEC AND NESC.

4 FENCE GROUNDING DETAIL
 E-301 SCALE: NTS



5 TYPICAL CONDUIT GROUNDING DETAIL
 E-301 SCALE: NTS



6 TYPICAL EQUIPMENT GROUNDING DETAIL
 E-301 SCALE: NTS

Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP

DESIGNER'S SEAL AND SIGN

12-07-2016

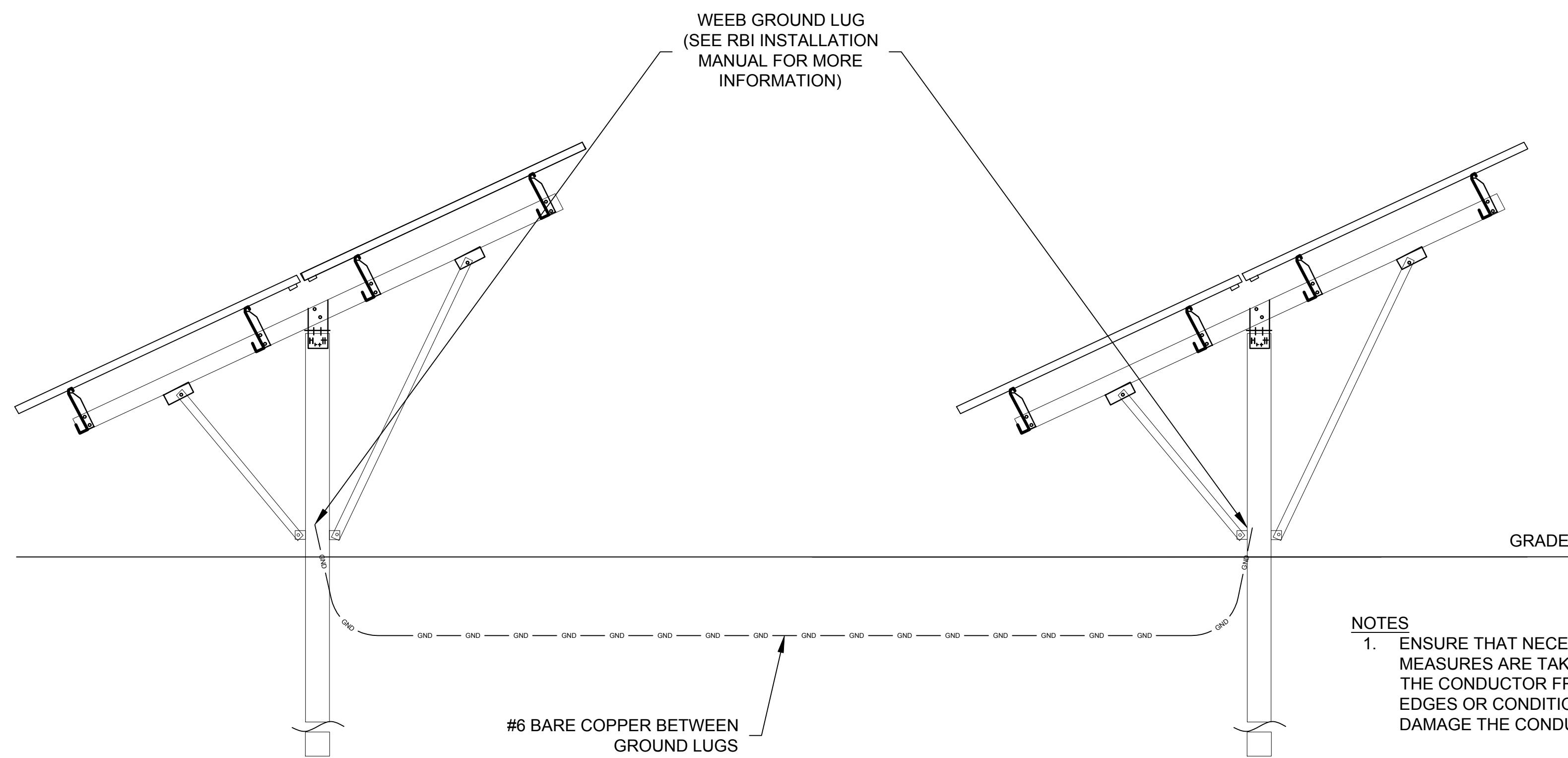
SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS
SHUTESBURY GROUND MOUNT
 PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

SHEET TITLE
GROUNDING DETAILS SHEET 2

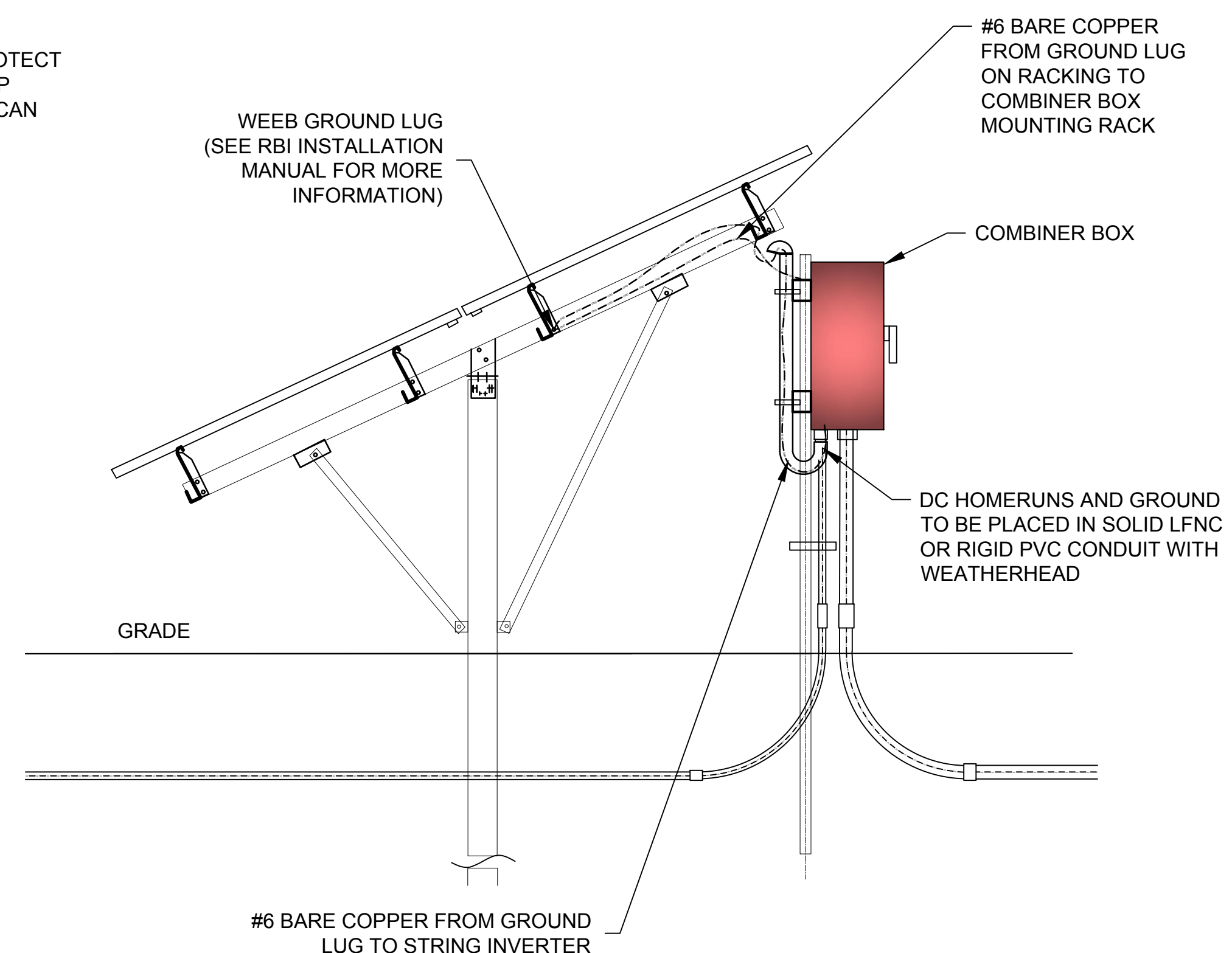
ENGINEER: EDGAR PUESAN	DRAWN BY: EDGAR PUESAN
PROJECT NO. 1620400	SHEET NO. E-301
CREATION DATE 10/04/2016	
SCALE AS NOTED	



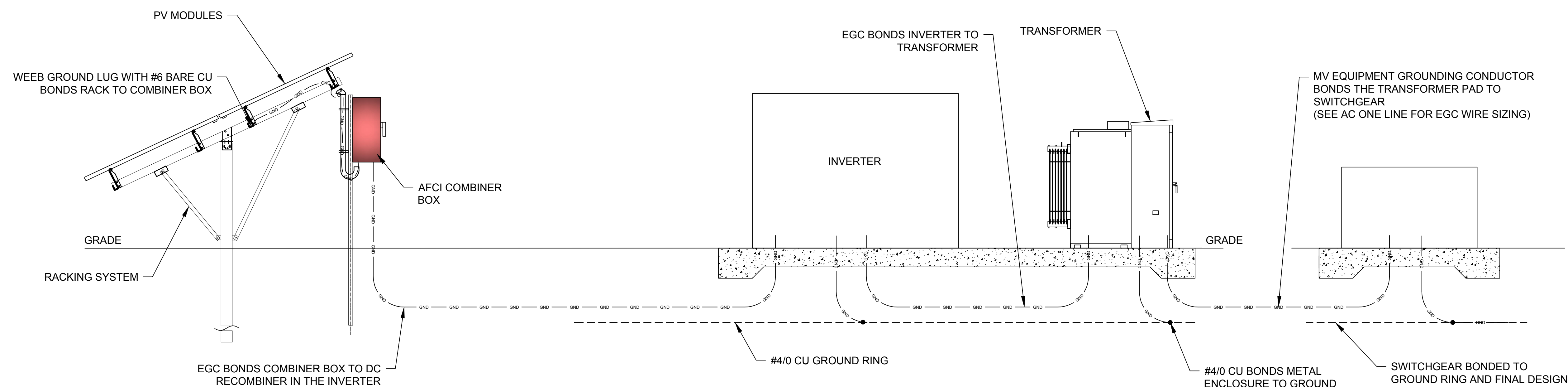
1 **RACKING TO RACKING GROUNDING**
 E-302 SCALE: NTS

- NOTES
1. THE AFCI COMBINER BOX UNIT SHALL BE BONDED TO THE SYSTEM.
 2. ENSURE THAT NECESSARY MEASURES ARE TAKEN TO PROTECT THE CONDUCTOR FROM SHARP EDGES OR CONDITIONS THAT CAN DAMAGE THE CONDUCTOR.

- NOTES
1. ENSURE THAT NECESSARY MEASURES ARE TAKEN TO PROTECT THE CONDUCTOR FROM SHARP EDGES OR CONDITIONS THAT CAN DAMAGE THE CONDUCTOR.



2 **RACK TO COMBINER BOX BONDING/GROUNDING**
 E-302 SCALE: NTS



3 **OVERALL GROUNDING SCHEMATIC**
 E-302 SCALE: NTS

Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP

DESIGNER'S SEAL AND SIGN

SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS
 SHUTESBURY GROUND MOUNT
 PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

SHEET TITLE
 GROUNDING DETAILS SHEET 3

ENGINEER: EDGAR PUESAN	DRAWN BY: EDGAR PUESAN
PROJECT NO. 1620400	SHEET NO. E-302
CREATION DATE 10/04/2016	
SCALE AS NOTED	

NOTE:

THE FOLLOWING CONDUITS ARE DETAILED IN THE PAD. IF ANY NEED TO BE ADDED, PLEASE CONTACT THE ENGINEER. ALL UNDERGROUND CONDUIT IS PVC SCH 40 UNLESS NOTED OTHERWISE.

ALL EQUIPMENT PADS WILL FOLLOW THIS LAYOUT WITH VERY MINOR CHANGES.

COMMUNICATION CONDUITS

- (1) QTY 2 -1" CONDUIT FOR WEATHER STATION AND SPARE
- (2) QTY 1 -1" CONDUIT FROM INVERTER TO DAS
- (3) 1" CONDUIT FROM TRANSFORMER ALARM CONTACTS TO DAS

DC CONDUITS (SEE DWG E-111 & E112 FOR SIZING)

- (4) QTY 10 3" CONDUITS FROM COMBINER BOXES TO INVERTER INTEGRATED DC RECOMBINER.

LV AC CONDUITS (SEE DWG E-101 FOR SIZING)

- (5) QTY 5 4" CONDUIT FROM INVERTER TO THE STEP UP TRANSFORMER.

HV AC CONDUITS (SEE DWG E-100 FOR SIZING)

- (6) 4" CONDUIT FROM TRANSFORMER TO GROUNDING BANK TRANSFORMER.
- (7) 4" CONDUIT FROM GROUNDING TRANSFORMER TO PAD-MOUNTED CUSTOMER RECLOSER SWITCHGEAR.

GEC

- (8) ALL GEC CONDUCTORS SHALL BE #4/0 TINNED COPPER CONDUCTOR. THIS SHALL SPLICE INTO THE GROUND RING.

AUXILIARY

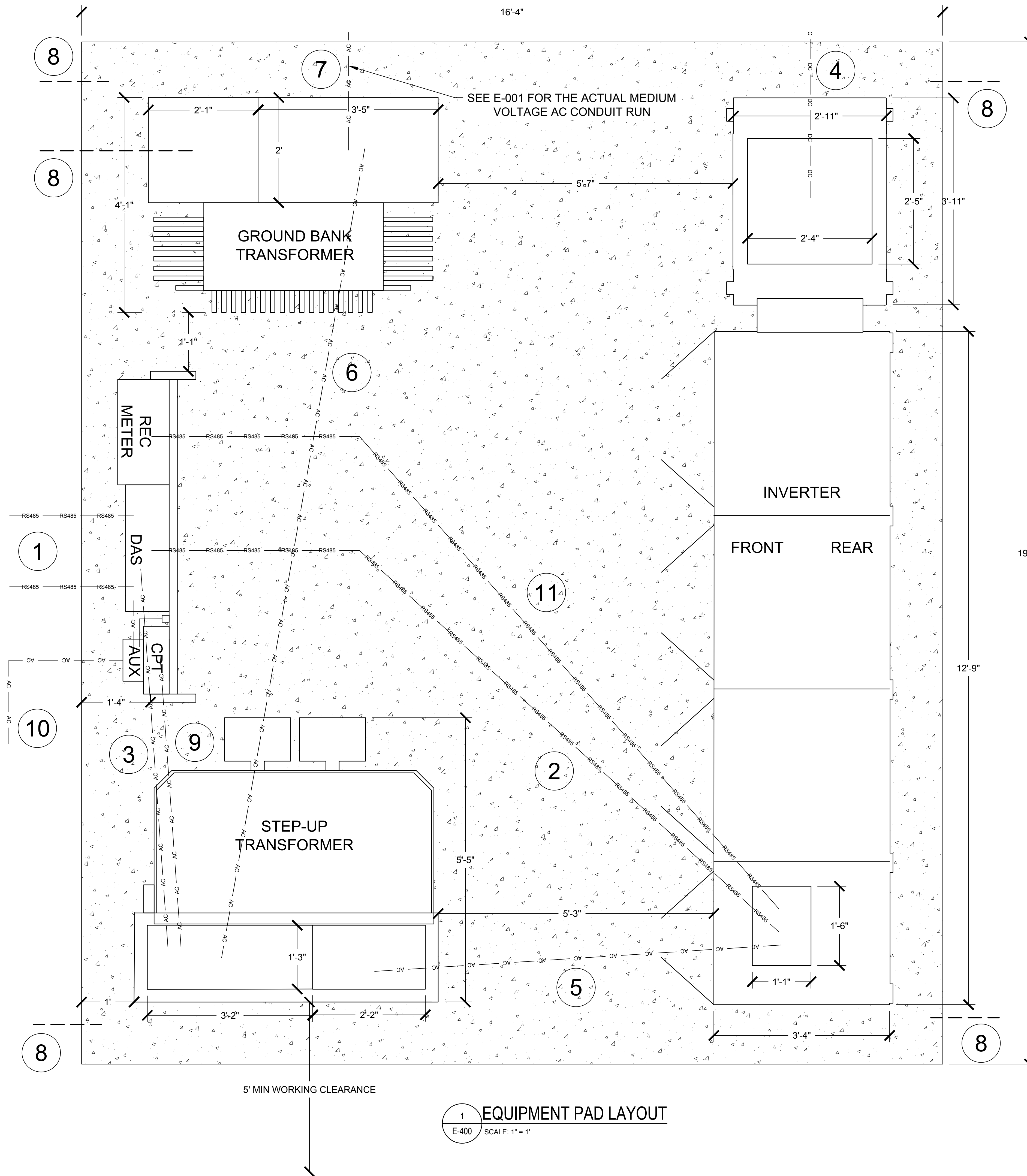
- (9) 1" CONDUIT FROM TRANSFORMER TO AUXILIARY TRANSFORMER.
- (10) 1" CONDUIT FROM AUXILIARY PANELBOARD TO DC COMBINER BOXES FOR AFCI CIRCUIT
- (11) 1" CONDUIT FROM INVERTER TO REVENUE GRADE METER

EQUIPMENT LIST

- 1x 5KVA 270V/120/240V THREE PHASE CONVENIENCE POWER XFMR
- 1x DISCONNECT (FOR CONVENIENCE POWER XFMR)
- 1x 1550 KVA 13.8KV/400V STEP UP TRANSFORMER
- 1x GROUND BANK TRANSFORMER
- 1x POWER ELECTRONICS 1500KW INVERTER WITH INTEGRATED RECOMBINER.
- 1x MONITORING BOX FOR DAS.
- 1x GFCI RECEPTACLE PER EACH INVERTER PAD
- 1x CUSTOMER METERING CABINET

NOTE:

EQUIPMENT ON DAS RACK WILL REQUIRE EXPANSION COUPLINGS AND FLEX CONDUIT.



1 EQUIPMENT PAD LAYOUT
 E-400 SCALE: 1" = 1'

Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP

DESIGNERS SEAL AND SIGN

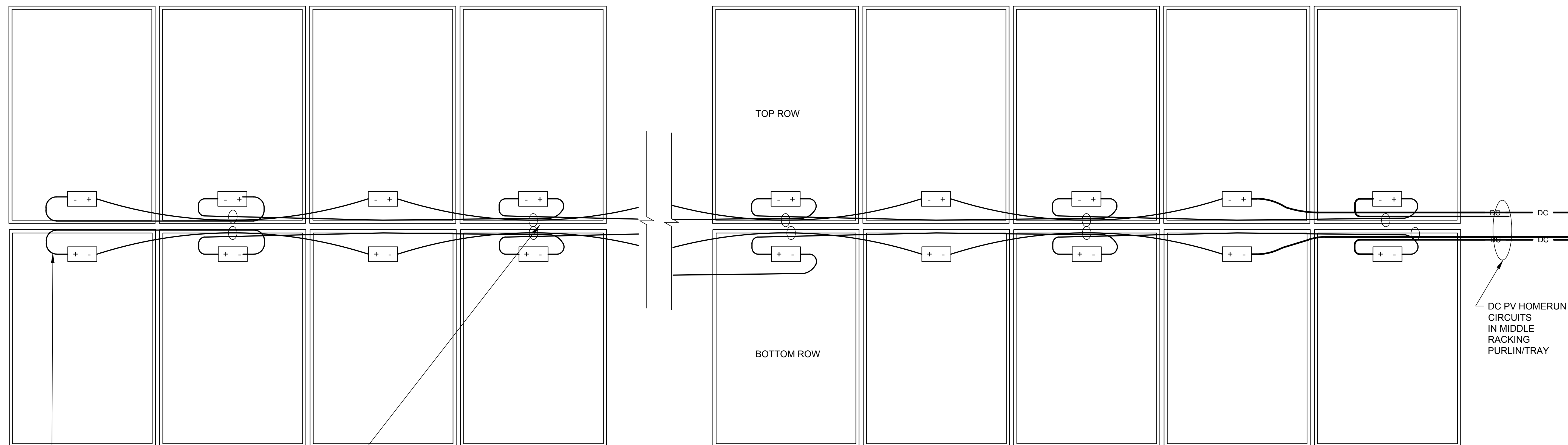
SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS
 SHUTESBURY GROUND MOUNT
 PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

SHEET TITLE
 EQUIPMENT PAD DETAIL

ENGINEER: EDGAR PUESAN	DRAWN BY: EDGAR PUESAN
PROJECT NO. 1620400	SHEET NO. E-400
CREATION DATE 10/04/2016	
SCALE AS NOTED	



Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP

DESIGNER'S SEAL AND SIGN

12-07-2016

SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS
 SHUTESBURY GROUND MOUNT
 PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

SHEET TITLE
 MISCELLANEOUS DETAILS
 SHEET 1

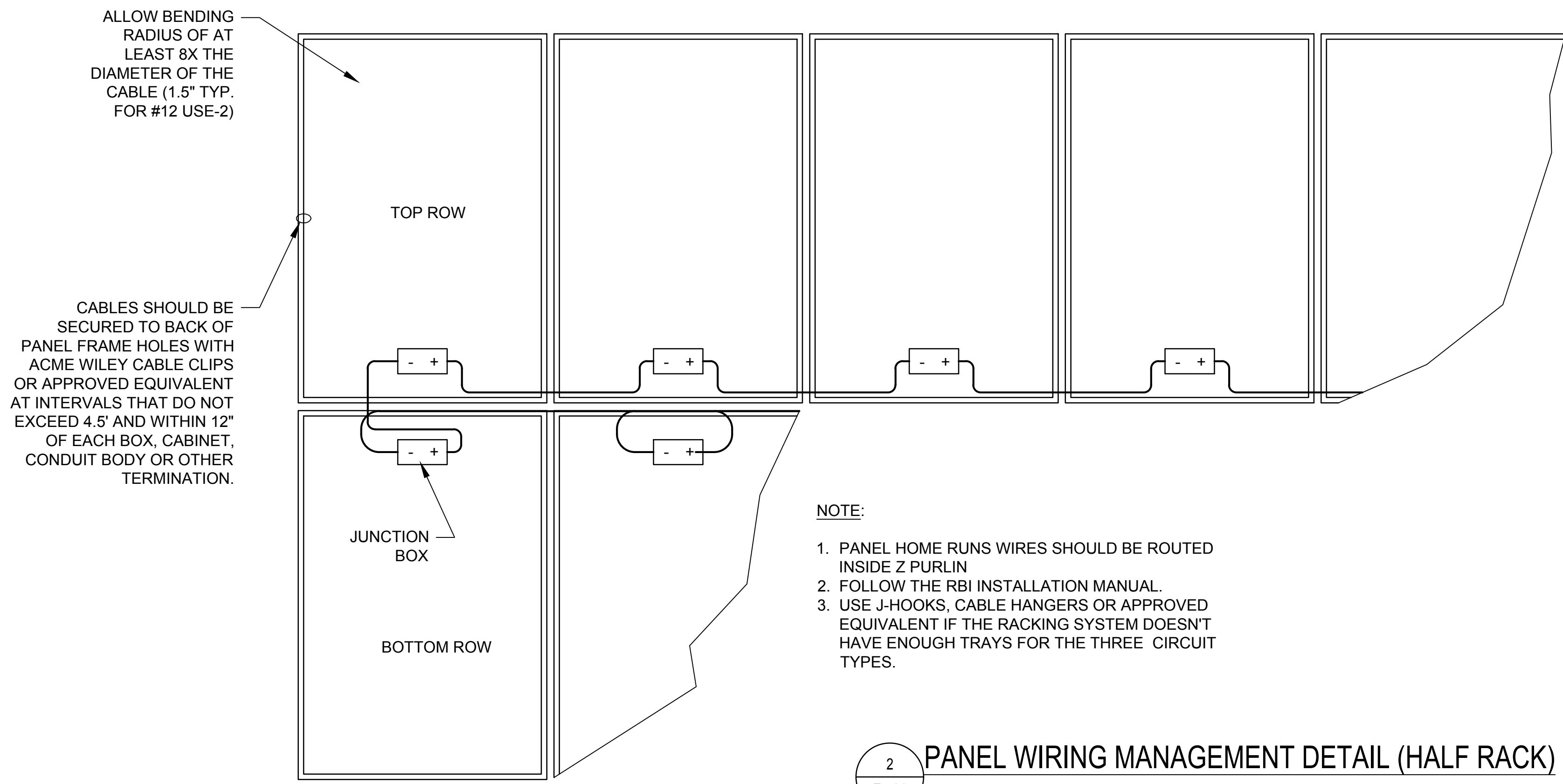
ENGINEER: EDGAR PUESAN	DRAWN BY: EDGAR PUESAN
PROJECT NO. 1620400	SHEET NO. E-401
CREATION DATE 10/04/2016	
SCALE AS NOTED	

- NOTE:
1. MODULE WIRING IS BASED ON THE SKIP-MODULE METHOD. TOP ROW IS ONE STRING, BOTTOM ROW IS ANOTHER STRING.
 2. PANEL HOME RUNS WIRES SHOULD BE ROUTED INSIDE Z PURLIN.
 3. REFER TO THE RACKING & PANEL INSTALLATION MANUAL FOR INSTRUCTIONS.
 4. USE J-HOOKS, CABLE HANGERS OR APPROVED EQUIVALENT IF NECESSARY.
 5. PER NEC SECTION 300.34, CONDUCTORS RATED FOR 1000V OR GREATER SHALL HAVE A MINIMUM BENDING RADIUS OF 8 TIMES THE OVERALL DIAMETER OF THE CONDUCTOR. THIS BENDING RADIUS ALSO APPLIES WHERE THE MODULE WHIP CONNECTS TO THE JUNCTION BOX ON THE MODULE.

KEEP AT LEAST A 1.5" BENDING RADIUS

CABLE CLIP CONNECTIONS TO FRAME OF MODULE, TYP

1 PANEL WIRING MANAGEMENT DETAIL (FULL RACK WITH SKIP WIRING)
 E-401 SCALE: NTS

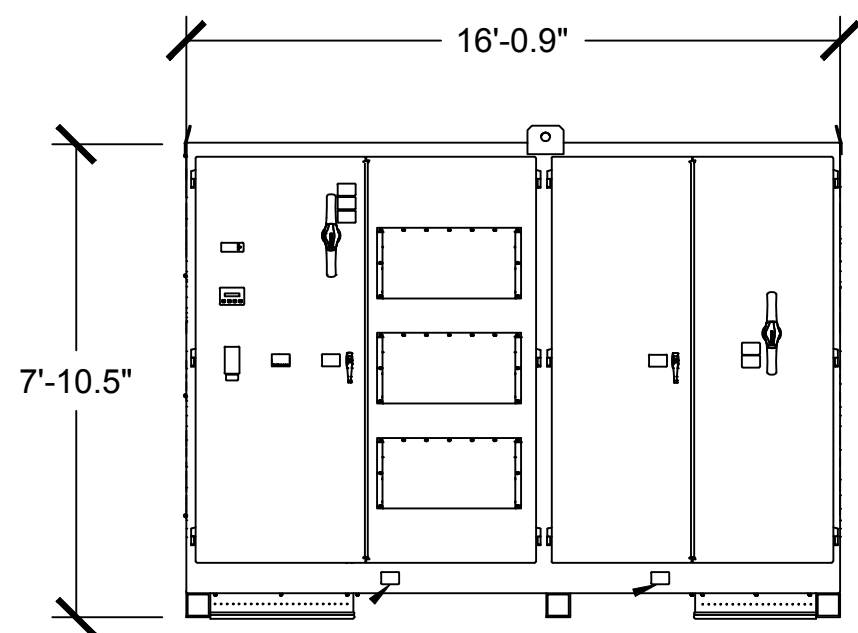


ALLOW BENDING RADIUS OF AT LEAST 8X THE DIAMETER OF THE CABLE (1.5" TYP. FOR #12 USE-2)

CABLES SHOULD BE SECURED TO BACK OF PANEL FRAME HOLES WITH ACME WILEY CABLE CLIPS OR APPROVED EQUIVALENT AT INTERVALS THAT DO NOT EXCEED 4.5' AND WITHIN 12" OF EACH BOX, CABINET, CONDUIT BODY OR OTHER TERMINATION.

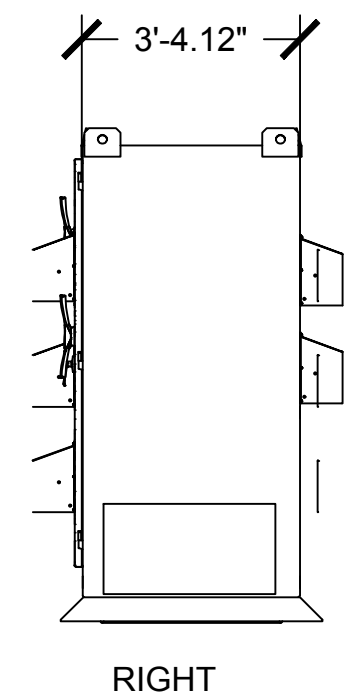
- NOTE:
1. PANEL HOME RUNS WIRES SHOULD BE ROUTED INSIDE Z PURLIN
 2. FOLLOW THE RBI INSTALLATION MANUAL.
 3. USE J-HOOKS, CABLE HANGERS OR APPROVED EQUIVALENT IF THE RACKING SYSTEM DOESN'T HAVE ENOUGH TRAYS FOR THE THREE CIRCUIT TYPES.

2 PANEL WIRING MANAGEMENT DETAIL (HALF RACK)
 E-401 SCALE: NTS



INVERTER SPECIFICATIONS:

MODEL: POWER ELECTRONICS FS1401CU
 MAX POWER: 1550kW CURTAILED TO 1500 KW @ 400 VAC
 WEIGHTED CEC EFFICIENCY: 98.0%
 PEAK EFFICIENCY: 98.6%
 FREQUENCY RANGE(Hz): 60
 MPPT INPUT VOLTAGE RANGE: 566 TO 900VDC
 ABSOLUTE MAX INPUT VOLTAGE: 1000 VDC
 WEIGHT: 10,119 LBS
 TOTAL HARMONIC DISTORTION/THD: < 3% TYPICAL
 LINE POWER FACTOR UNITY: > +/-0.0 ADJUSTABLE
 DIRECTIVES AND STANDARDS: UL 1741 / IEEE1547

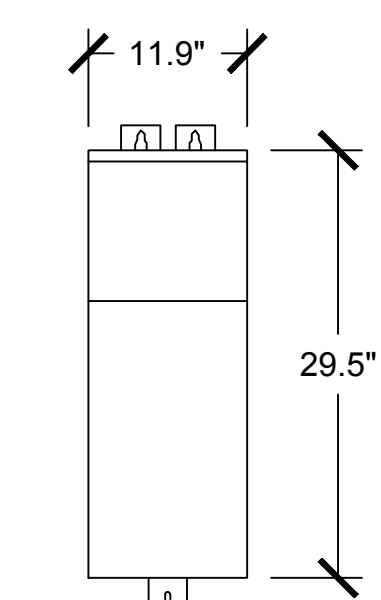


DETAIL 3 NOTE:

- SEE E-120 FOR CONDUCTOR AND CONDUIT SIZES.
- ELECTRICIAN TO INSTALL PROTECTIVE BUSHINGS.
- COMBINER BOX TO COME WITH 4' WHIPS.
- FASTENERS TO BE GALVANIZED.
- BOTTOM ENTRY ONLY
- COMBINER BOX TO BE MOUNTED AT A MINIMUM OF 3'.
- UNISTRUT TO BE GROUNDED.
- PV STRING WIRING SHALL EXIT THE MIDDLE Z PURLIN THEN DROP DOWN THE RACKING POST TO BELOW GRADE, THEN RUN ACROSS TO THE LOCATION OF THE COMBINER BOX.
- WIRE LOOM TO BE USED AT ANY POINT WHERE PV CONDUCTORS ARE EXPOSED OR CROSS SHARP EDGES.
- CONTRACTOR SHALL NEATLY TIE WRAP AND SECURE THE HOMERUNS FROM THE PANELS TO THE COMBINER BOX. CARE SHALL BE TAKEN TO PROTECT THE HOMERUNS FROM FROM SHARP EDGES THAT WOULD DAMAGE THE CONDUCTORS.
- USE J-HOOKS, CABLE HANGERS OR APPROVED EQUIVALENT IF NECESSARY.
- MINIMUM BENDING RADIUS FOR HOMERUN CONDUCTORS IS 8X THE DIAMETER OF THE CABLES.

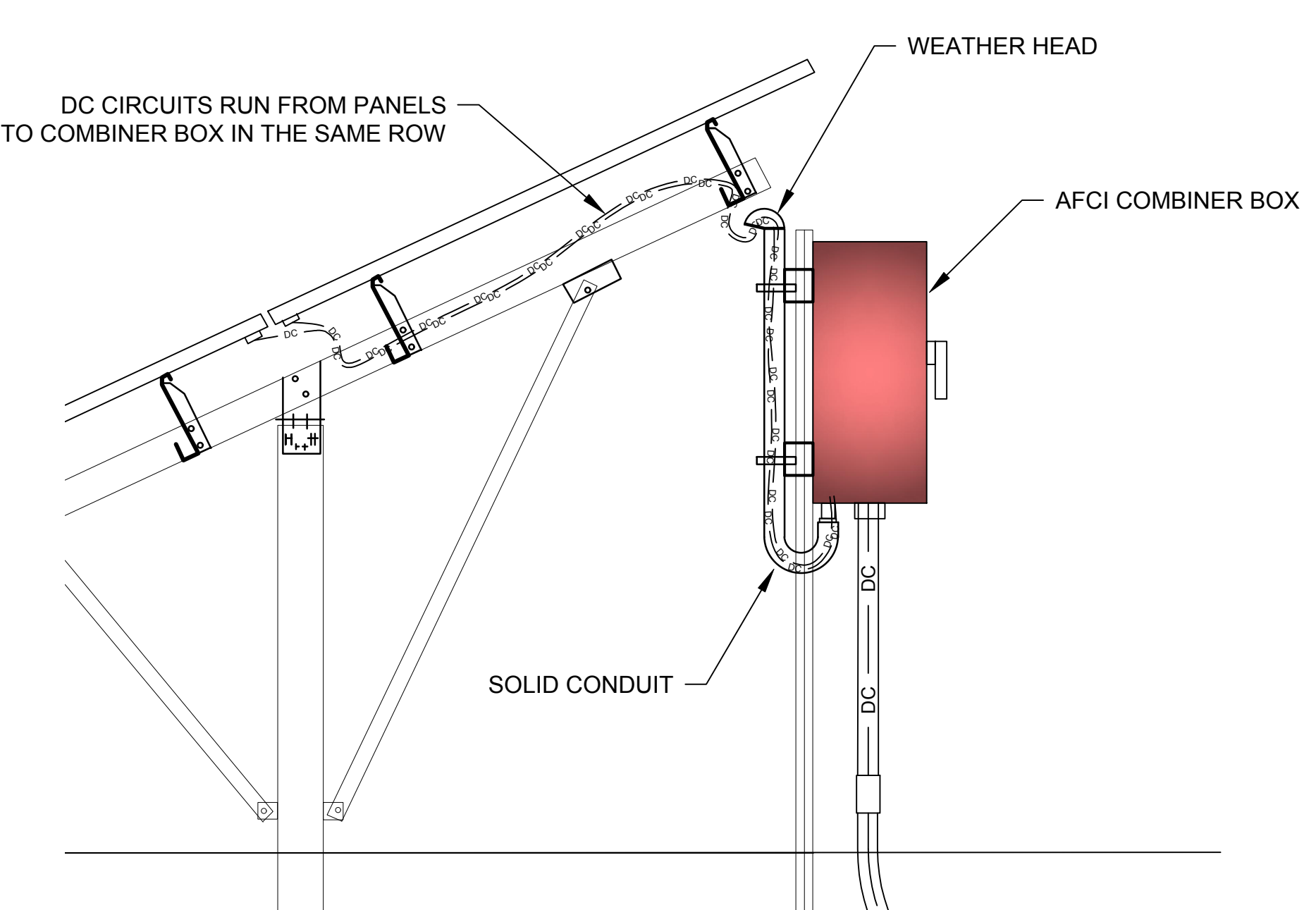
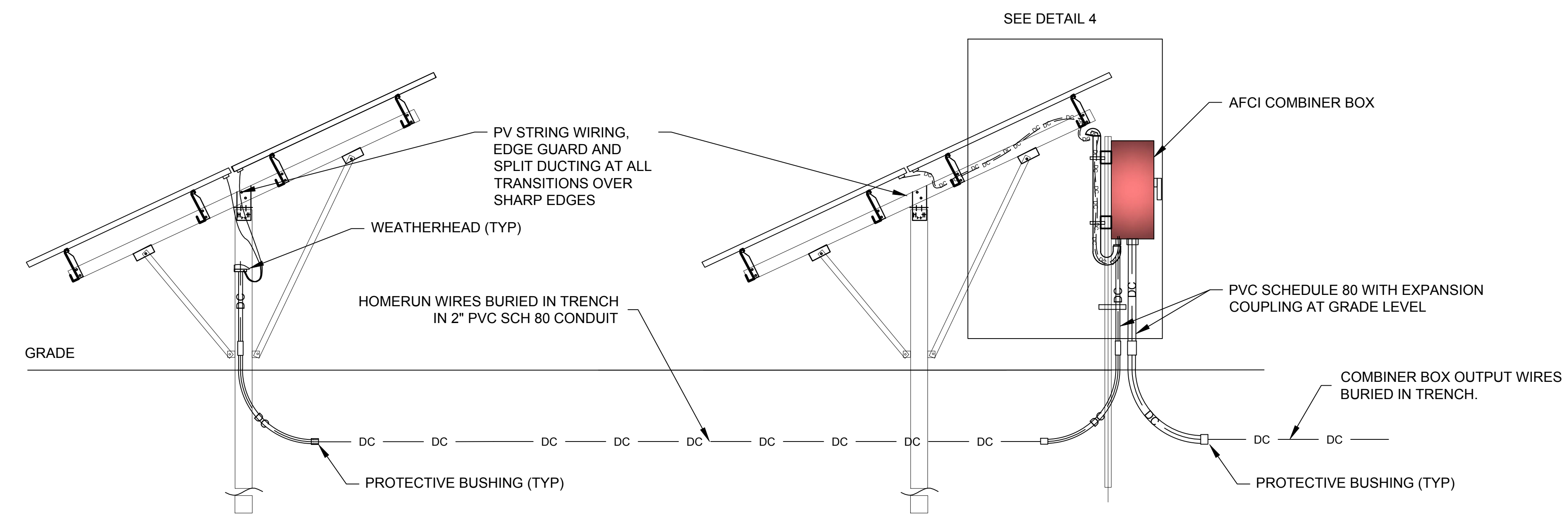
TRANSFORMER SPECIFICATIONS:

MANUFACTURER: COOPER
 MODEL: MINI POWER ZONE
 CATALOG NUMBER: TBD
 PRIMARY kVa RATING: 5
 PHASE: 1
 FREQUENCY RANGE(Hz): 60
 PRIMARY VOLTAGE: 400V
 SECONDARY VOLTAGE: 240/120V
 TAPS: NONE
 TEMP RISE: 115C
 WINDING MATERIAL: ALUMINUM
 LISTING AGENCY: UL
 WEIGHT: 105LBS
 ENCLOSURE: NEMA 3R



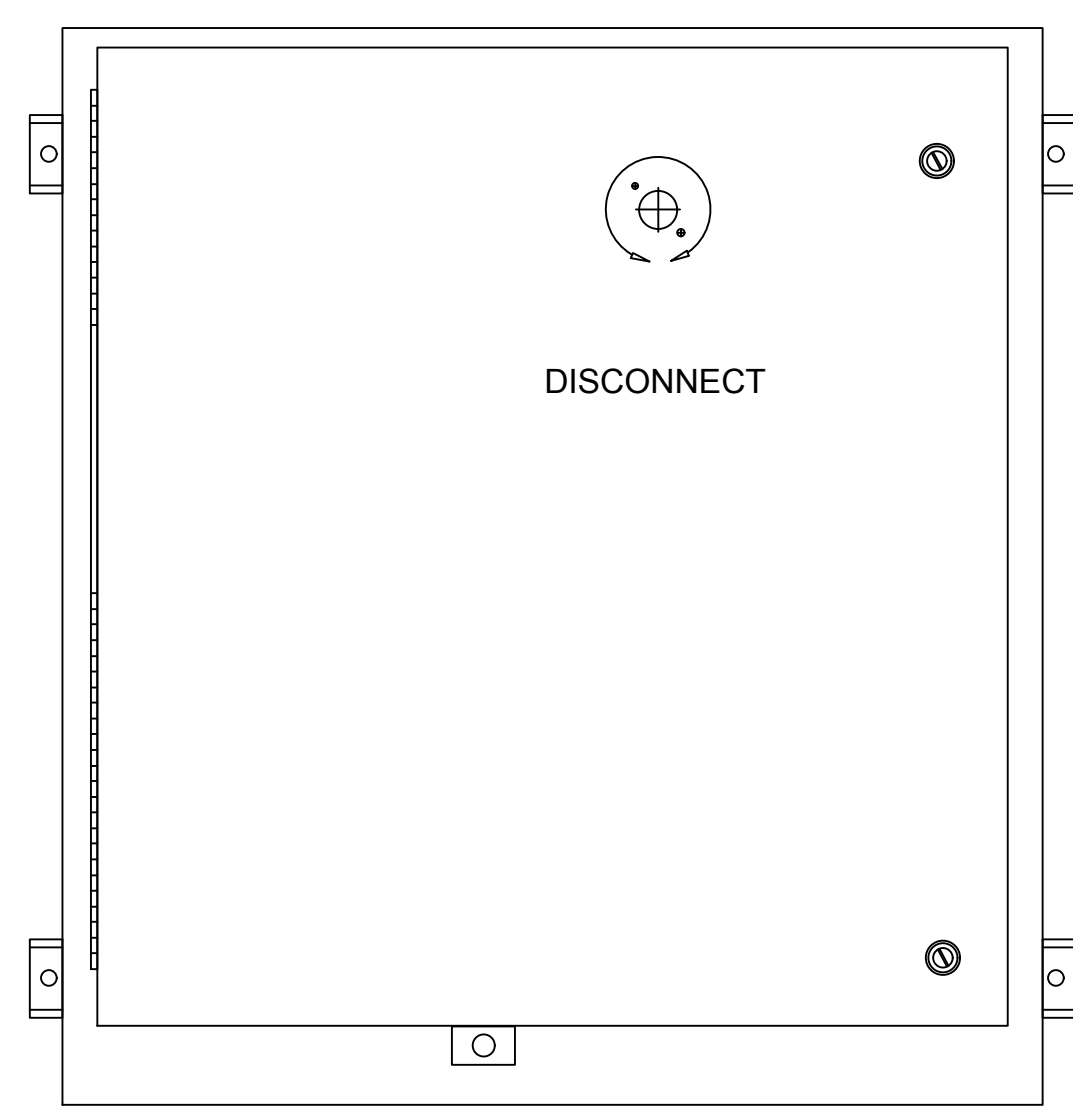
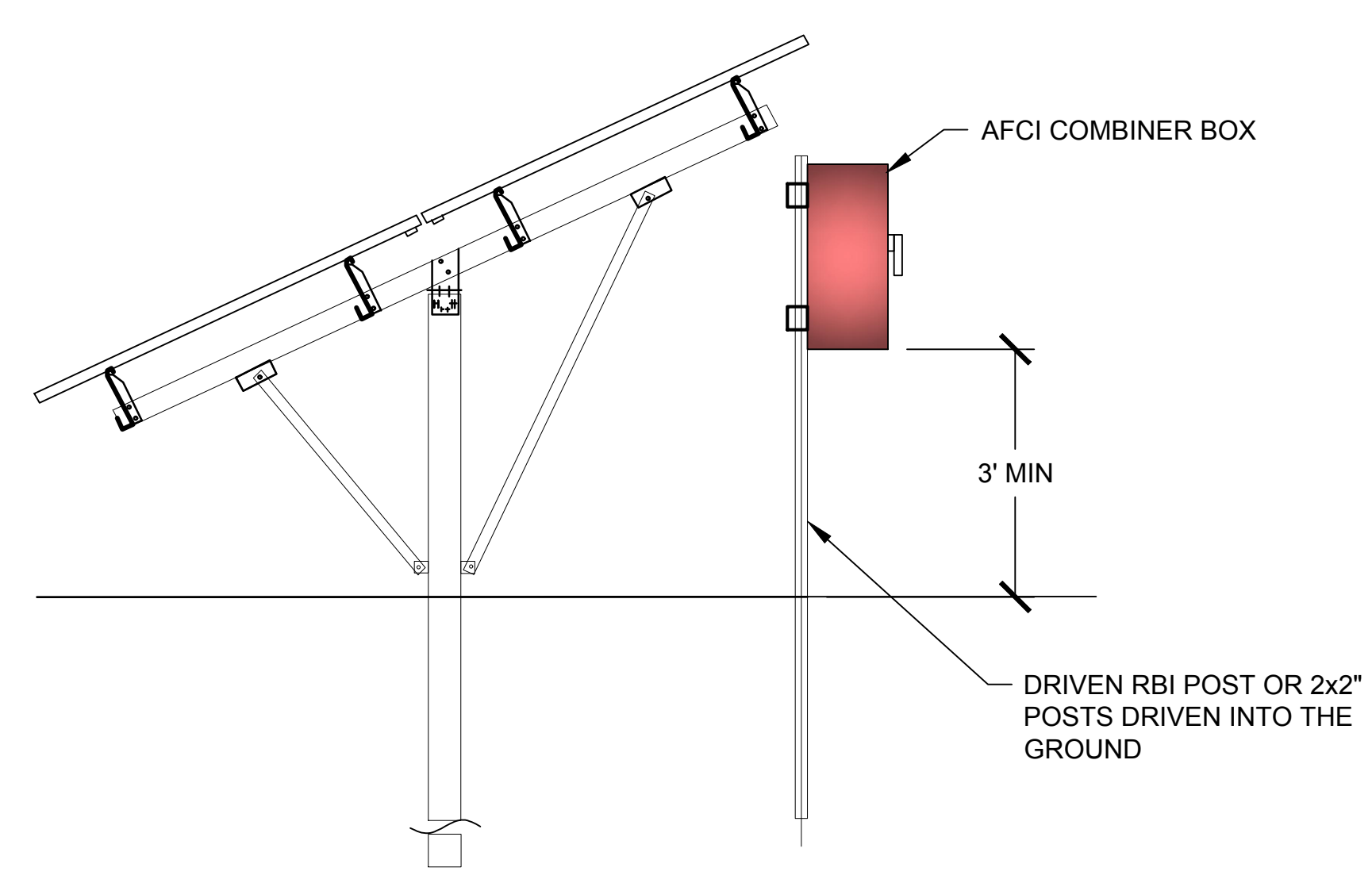
1 POWER ELECTRONICS FS1401CU
 E-402 SCALE: NTS

2 AUXILIARY TRANSFORMER
 E-402 SCALE: NTS



3 DC CONDUCTORS WIRE MANAGEMENT DETAIL
 E-402 SCALE: NTS

4 DC CONDUCTORS WIRE MANAGEMENT DETAIL
 E-402 SCALE: NTS



NOTE:

- LOCATED ON REAR OF ARRAY POST ON A MOUNTING POST.
- BOTTOM ENTRY ONLY
- COMBINER BOX TO BE MOUNTED ATLEAST 3' FROM GRADE TO BOTTOM OF THE BOX
- UP TO 24 INPUTS @ 15A
- 400A/350A DISCONNECTS
- INTEGRATED SURGE ARRESTORS
- NEMA 4 STEEL ENCLOSURE
- DISCONNECT COMBINER BOXES WITH ARC FAULT CIRCUIT INTERRUPTER.
- DAISY CHAIN THE POWER TO THE ARC FAULT INTERRUPTER UNIT IN THE COMBINER BOXES CONNECTED TO ONE INVERTER.

5 COMBINER BOX MOUNTING DETAIL
 E-402 SCALE: NTS

6 AFCI DISCONNECT COMBINER BOX
 E-402 SCALE: NTS

Conti
 2045 LINCOLN HWY
 EDISON, NJ 08817

Rev	Description	Date	Dwn	CHK
0	PERMIT SET	12/05/2016	EP	EP

DESIGNER'S SEAL AND SIGN

 12-07-2016

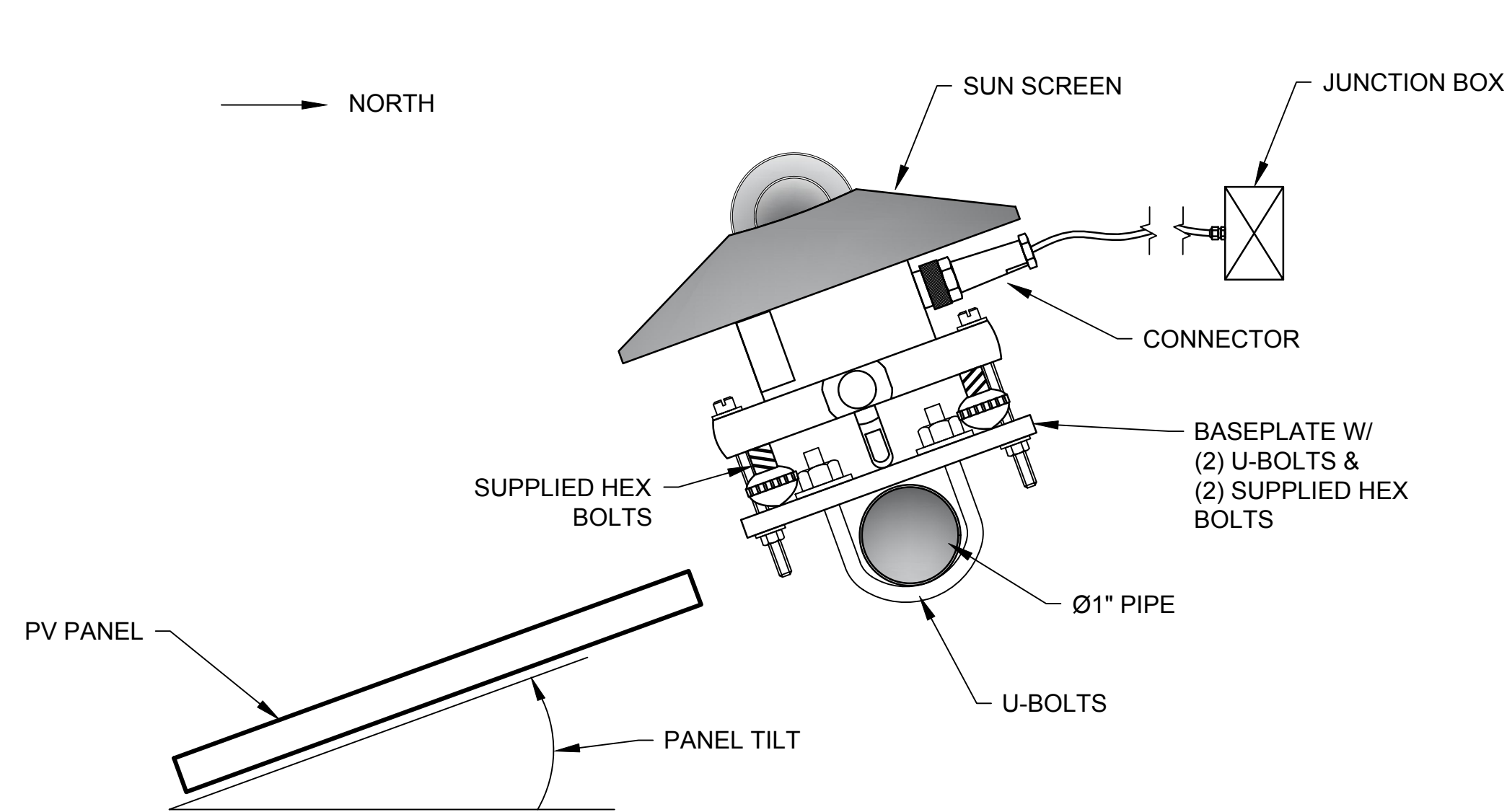
SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS
 SHUTESBURY GROUND MOUNT
 PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

SHEET TITLE
 MISCELLANEOUS DETAILS
 SHEET 2

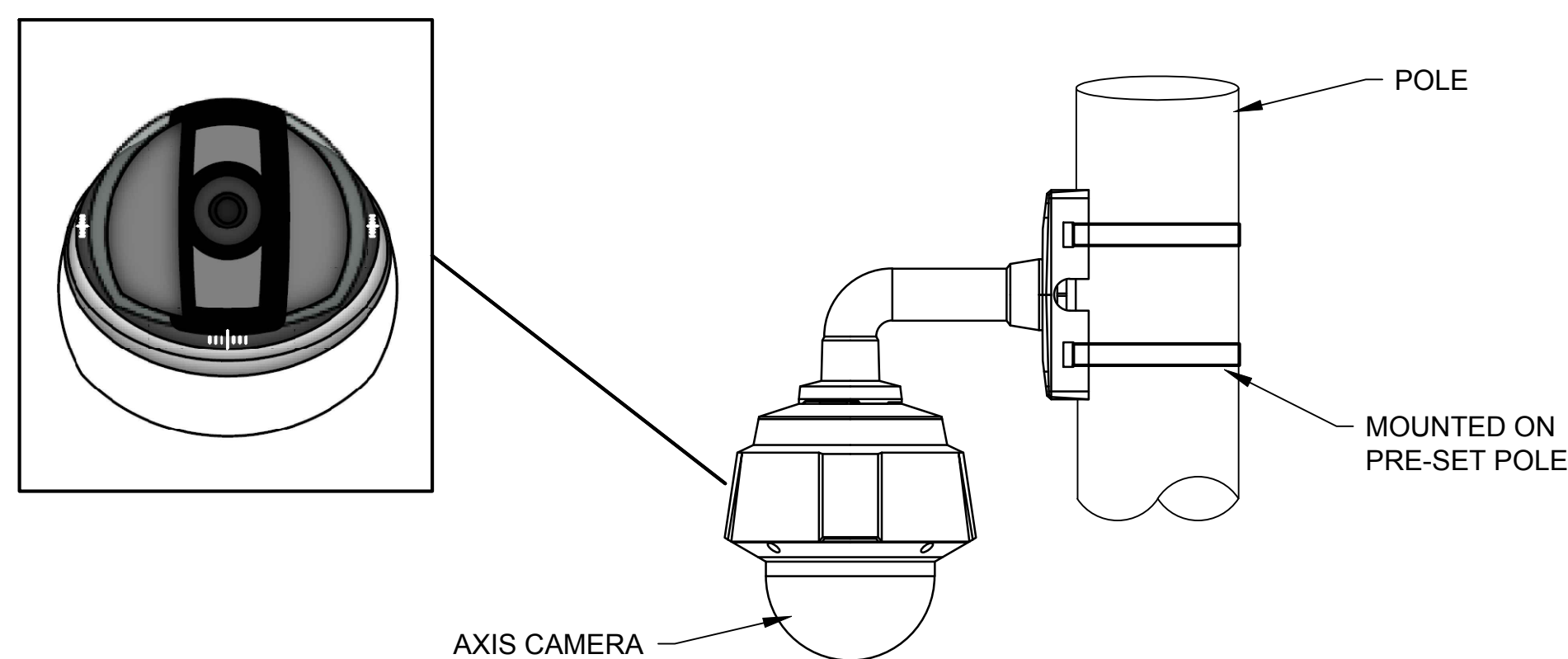
ENGINEER: EDGAR PUESAN	DRAWN BY: EDGAR PUESAN
PROJECT NO. 1620400	SHEET NO. E-402
CREATION DATE 10/04/2016	SCALE AS NOTED



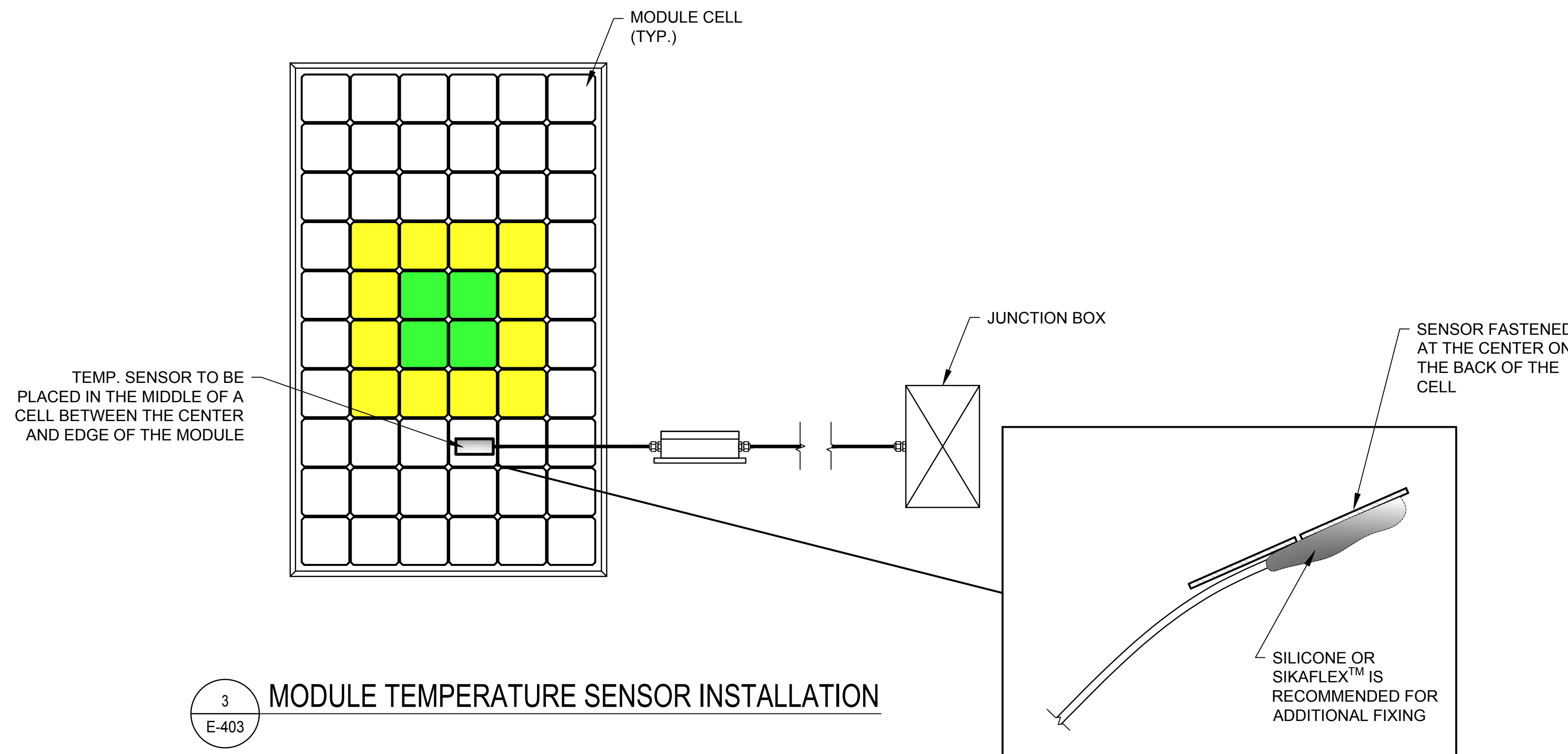
1 PYRANOMETER (POA) INSTALLATION
E-403

PYRANOMETER NOTE:

- IF PYRANOMETER (POA) IS NEEDED, ROTATE ASSEMBLY SO THAT THE BASEPLATE IS PARALLEL TO THE PV ARRAY AND FASTEN SNUGLY. IF PYRANOMETER (GHI) IS NEEDED, ROTATE ASSEMBLY SO THAT THE BASEPLATE IS PARALLEL TO THE GROUND.
- PLACE PYRANOMETER ONTO THE MOUNTING BRACKET BASEPLATE AND ENSURE THEY ARE PARALLEL TO EACH OTHER USING THE LEVELING METER.
- ELECTRICAL DETAILS REFERS TO DAS INFORMATION. IF THE SENSOR IS THE LAST DEVICE IN A MODBUS CHAIN WHICH CONSISTS OF 3 OR MORE DEVICES, THEN ADD A 120Ω RESISTOR BETWEEN THE DATA+ AND DATA- WIRES



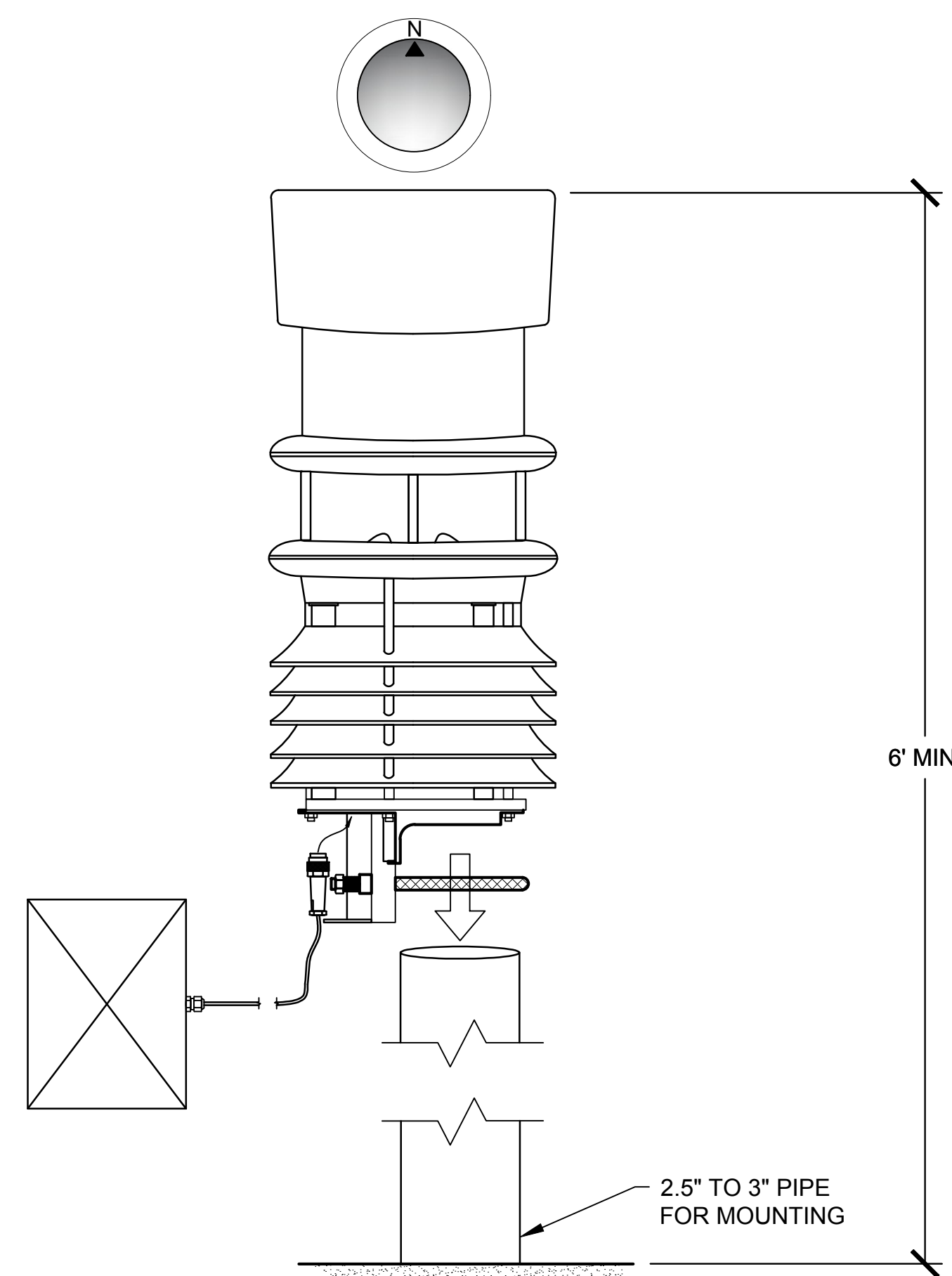
2 AXIS CAMERA INSTALLATION (OPTIONAL)
E-403



3 MODULE TEMPERATURE SENSOR INSTALLATION
E-403

TEMPERATURE SENSOR NOTE:

- THE SENSOR SHALL BE PLACED ON A MODULE THAT IS AT LEAST 1 MODULE FROM THE EDGE OF THE ARRAY ON ALL SIDES WHEN POSSIBLE.
- CLEAN THE CELL BEFORE ATTACHING A SENSOR ONTO IT.



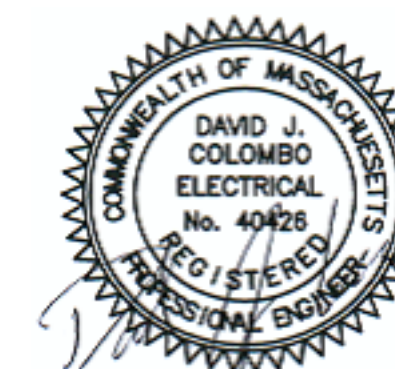
4 LUFFT WS601USM INSTALLATION
E-403

WS601UMB NOTE:

- VERTICALLY MOUNT ON A 2.5" TO 3" Ø O.D. RIGID METAL POLE IN A LOCATION FREE OF OBSTRUCTIONS AND SHADING.
- FIRST LOOSELY MOUNT THE WS601 MAKING SURE IT HAS AT LEAST 6' HEIGHT TO THE GROUND.
- ALIGN THE NORTH INDICATORS ON THE WS601 WITH MAGNETIC NORTH USING A COMPASS AND TIGHTEN THE FASTENERS.

Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP

DESIGNERS SEAL AND SIGN



12-07-2016

SYSTEM DESIGNER

SYSTEM OWNER

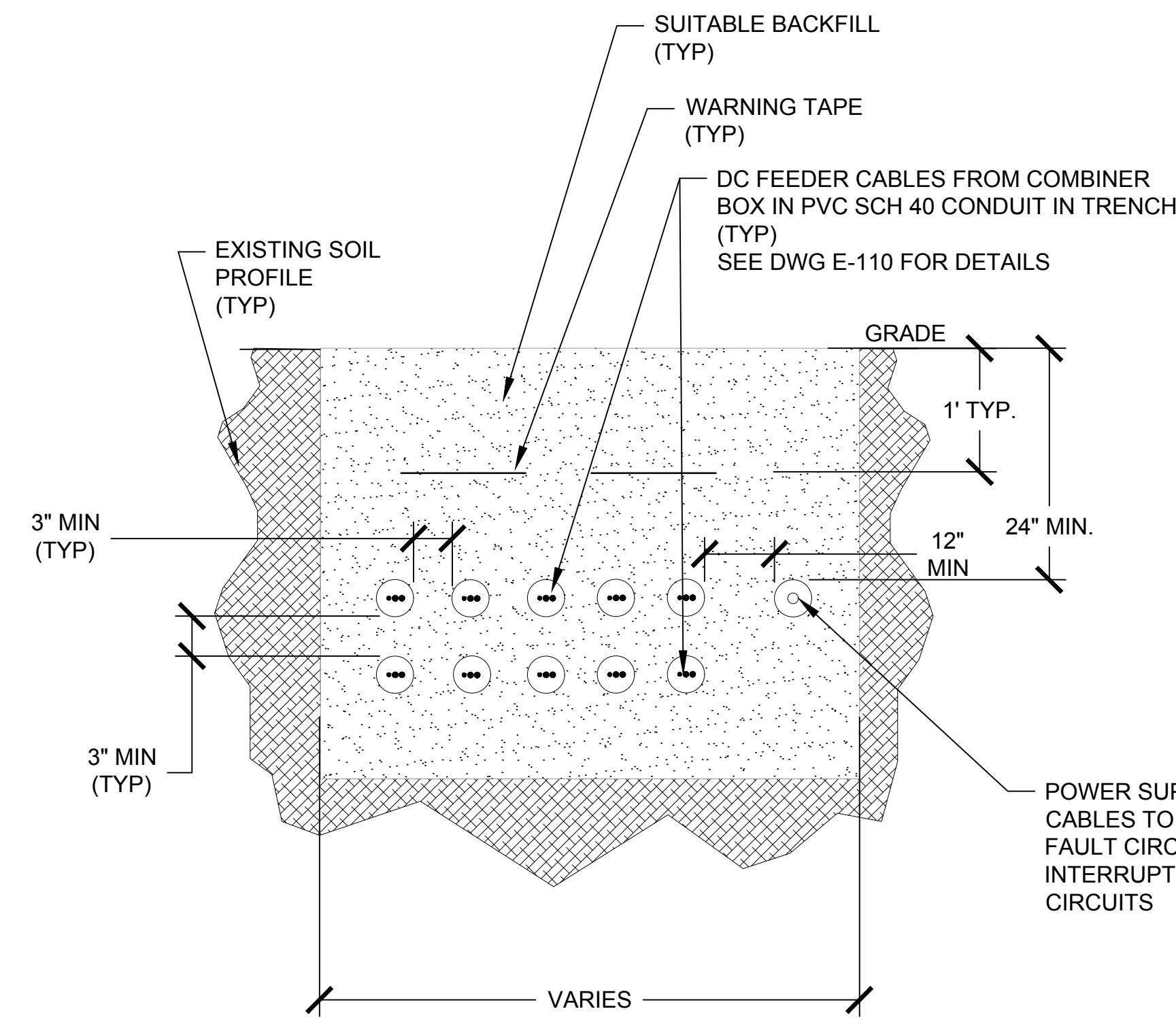
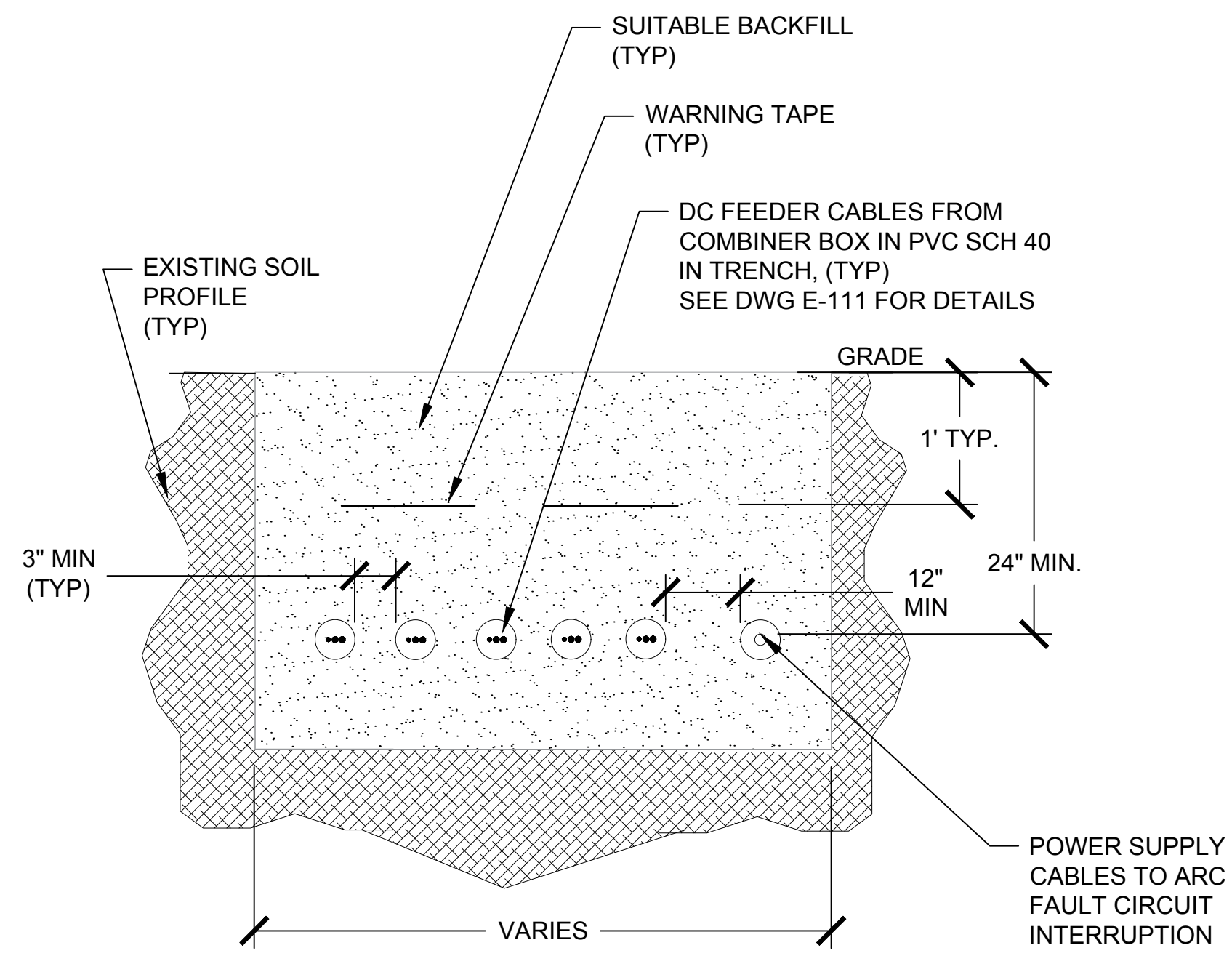
PROJECT NAME AND ADDRESS

SHUTESBURY GROUND MOUNT

PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

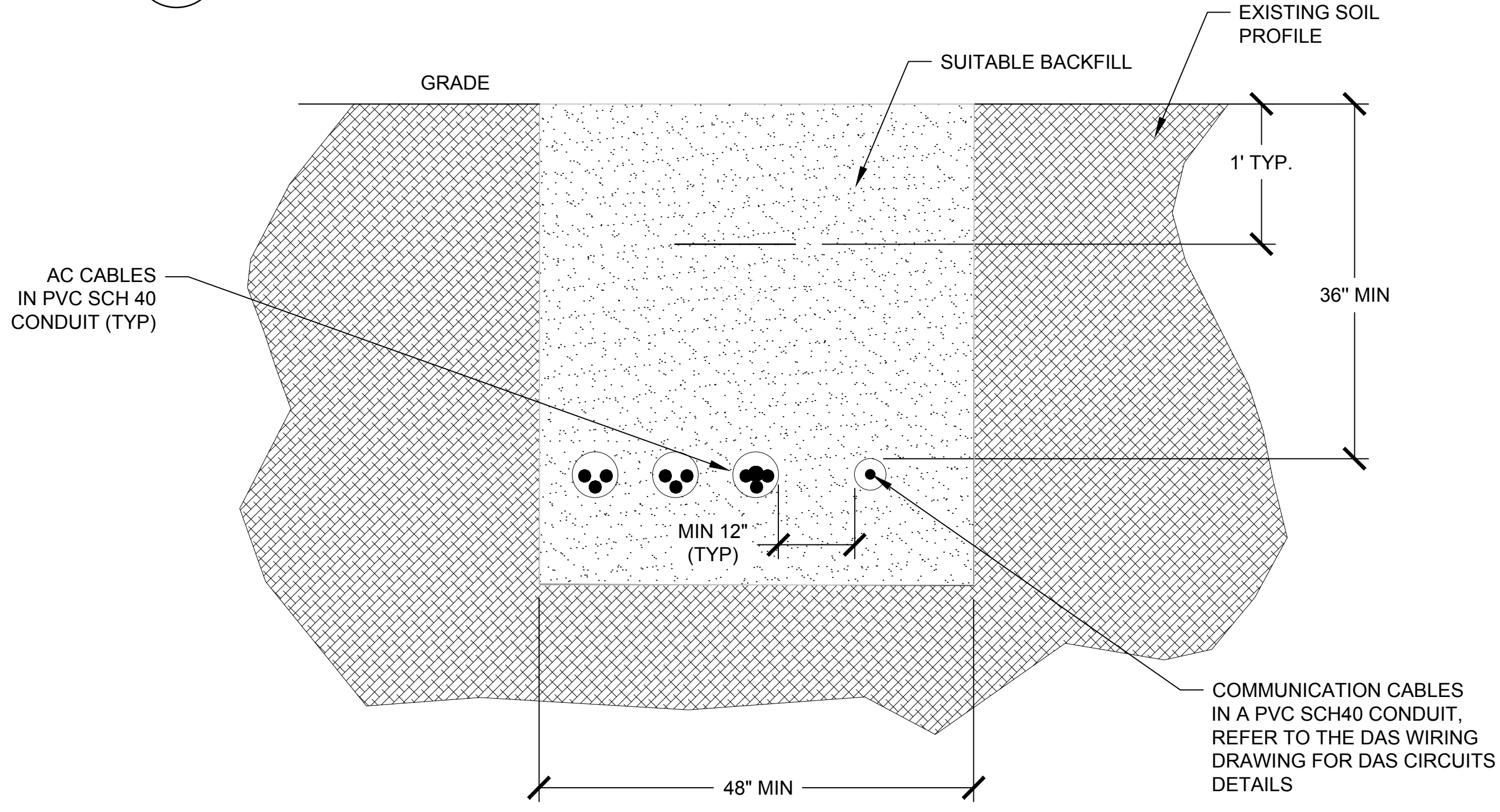
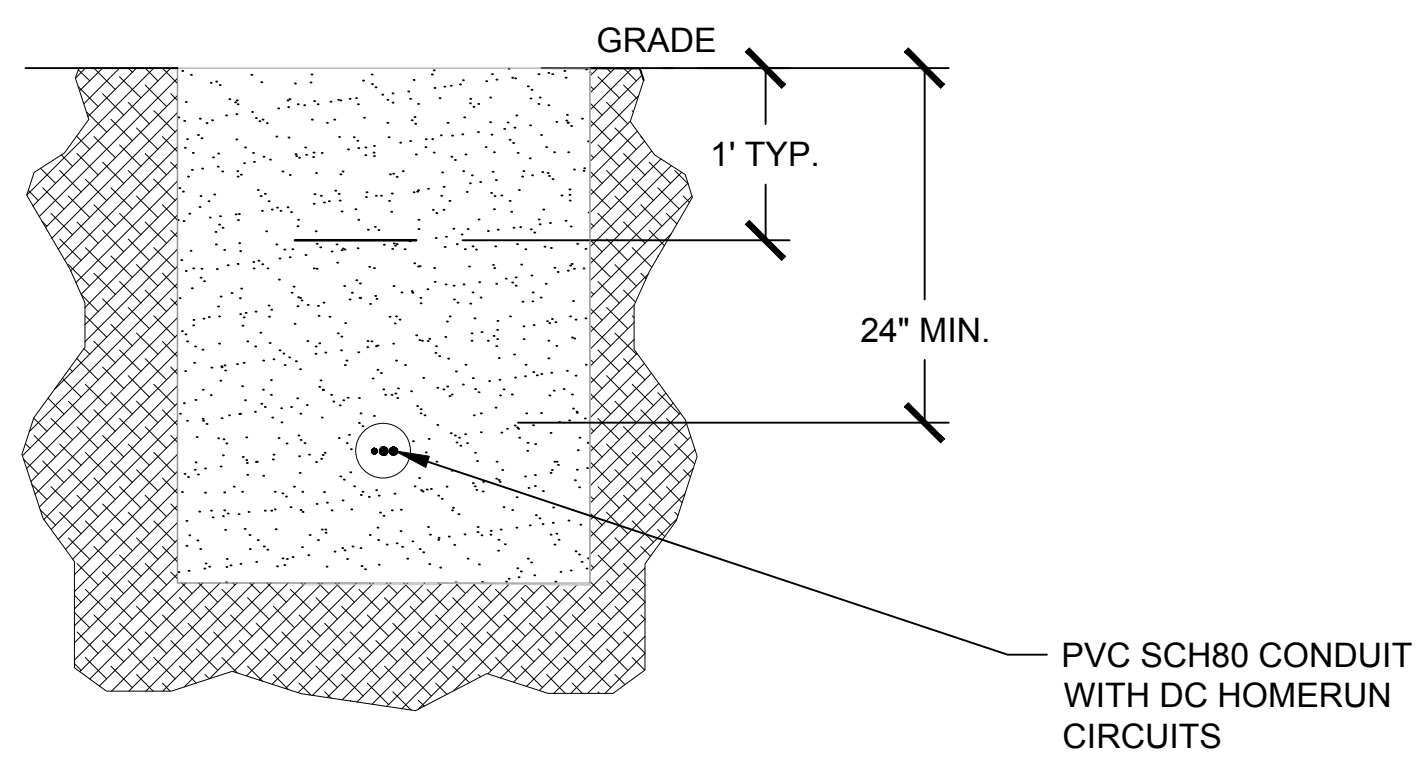
SHEET TITLE
MISCELLANEOUS DETAILS
SHEET 3

ENGINEER: EDGAR PUESAN	DRAWN BY: EDGAR PUESAN
PROJECT NO. 1620400	SHEET NO. E-403
CREATION DATE 10/04/2016	
SCALE AS NOTED	



1 DC FEEDER CIRCUITS + AFCI AC-POWER SUPPLY TRENCH DETAILS(SINGLE LAYER)
 E-404 SCALE: NONE

2 DC FEEDER CIRCUITS + AFCI AC-POWER SUPPLY TRENCH DETAILS (TWO LAYERS)
 E-404 SCALE: NONE



3 DC HOMERUNS ROW TO ROW JUMPER TRENCH DETAILS
 E-404 SCALE: NONE

4 MEDIUM VOLTAGE CONDUCTORS WITH COMMUNICATION CABLES TRENCH DETAILS
 E-404 SCALE: NONE

- NOTES:**
1. ALL AC CONDUITS TO BE BURIED AT A MINIMUM OF 3'. ALL DC CONDUITS TO BE BURIED AT A MINIMUM OF 2'.
 2. COMMUNICATION CABLES TO BE A MINIMUM OF 12" AWAY FROM DC AND AC CABLES.
 3. WARNING TAPE TO BE METALLIC WITH THE PHRASE "CAUTION: BURIED ELECTRICAL LINES"
 4. BACKFILL TO BE FREE FROM ANY ROCKS OR OTHER DELETERIOUS OBJECTS THAT ARE 2" IN DIAMETER OR GREATER.
 5. ELECTRICIANS TO PROVIDE MATCHING FITTINGS AND EXPANSION COUPLINGS BY THE SAME MANUFACTURER AS THE CONDUIT

Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP

DESIGNERS SEAL AND SIGN

12-07-2016

SYSTEM DESIGNER

SYSTEM OWNER

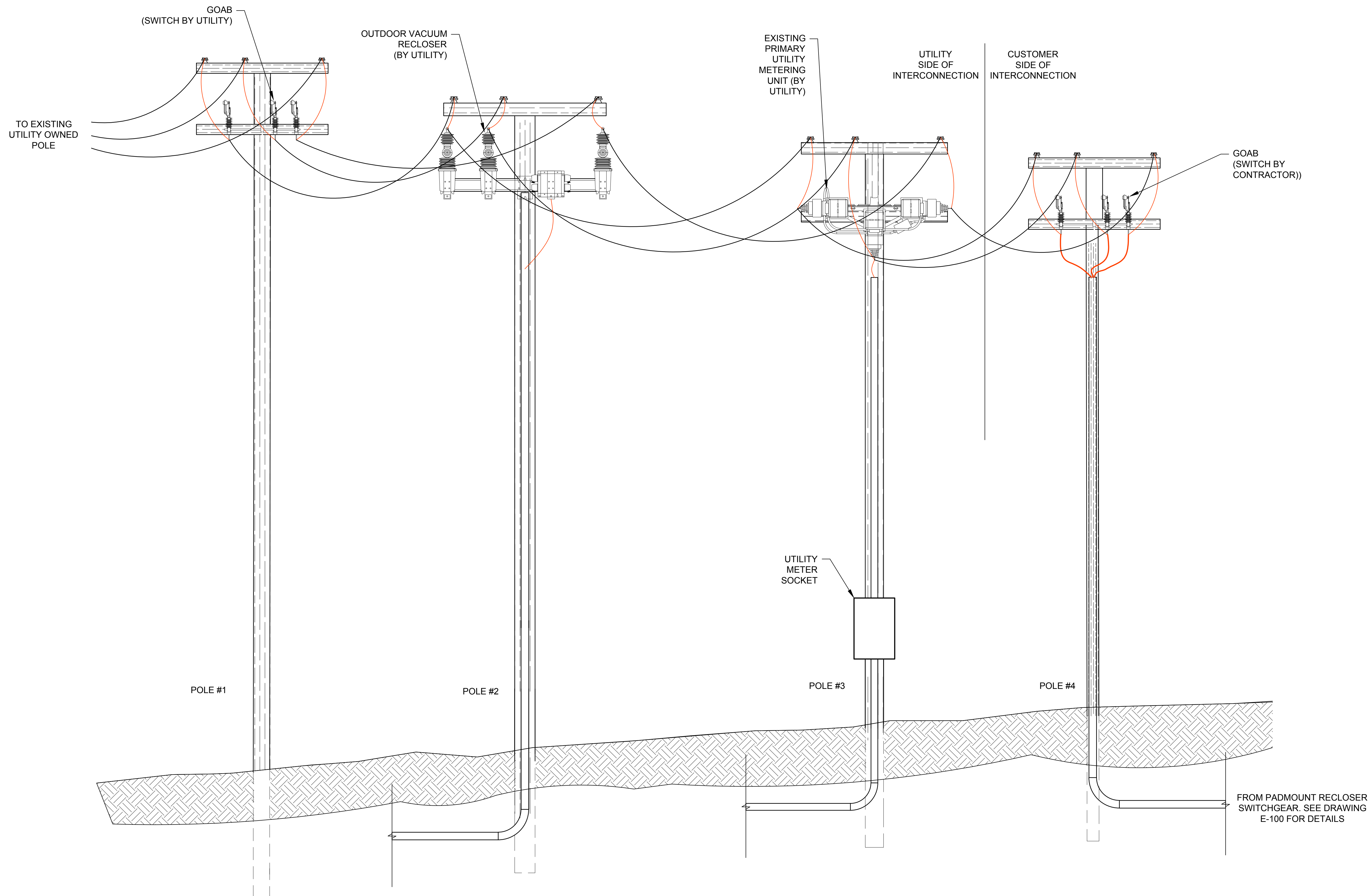
PROJECT NAME AND ADDRESS
 SHUTESBURY GROUND MOUNT
 PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

SHEET TITLE
 MISCELLANEOUS DETAILS
 SHEET 4

ENGINEER: EDGAR PUESAN	DRAWN BY: EDGAR PUESAN
PROJECT NO. 1620400	SHEET NO.
CREATION DATE 10/04/2016	E-404
SCALE AS NOTED	

NOTES:

1. THIS DRAWING IS MEANT AS OVERVIEW OF THE INTERCONNECTION AND DOES NOT REPRESENT A CONSTRUCTION PLAN. PLEASE REFER TO E-100 DRAWINGS FOR ADDITIONAL INFORMATION.
2. DO NOT USE THIS DRAWING FOR SCALING, DIMENSIONS, OR THE LIKE.



Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP

DESIGNERS SEAL AND SIGN

12-07-2016

SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS

SHUTESBURY GROUND MOUNT

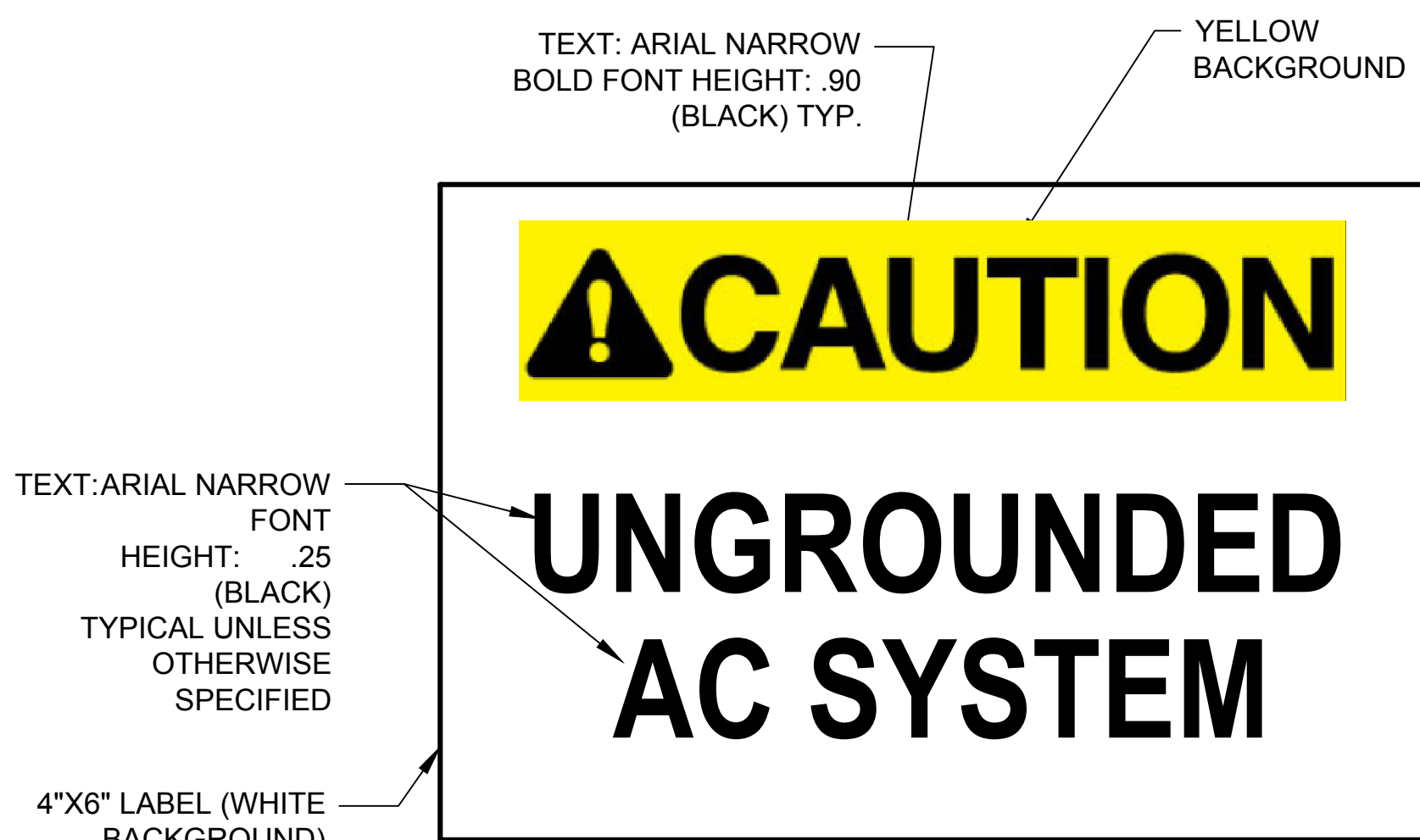
PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

SHEET TITLE

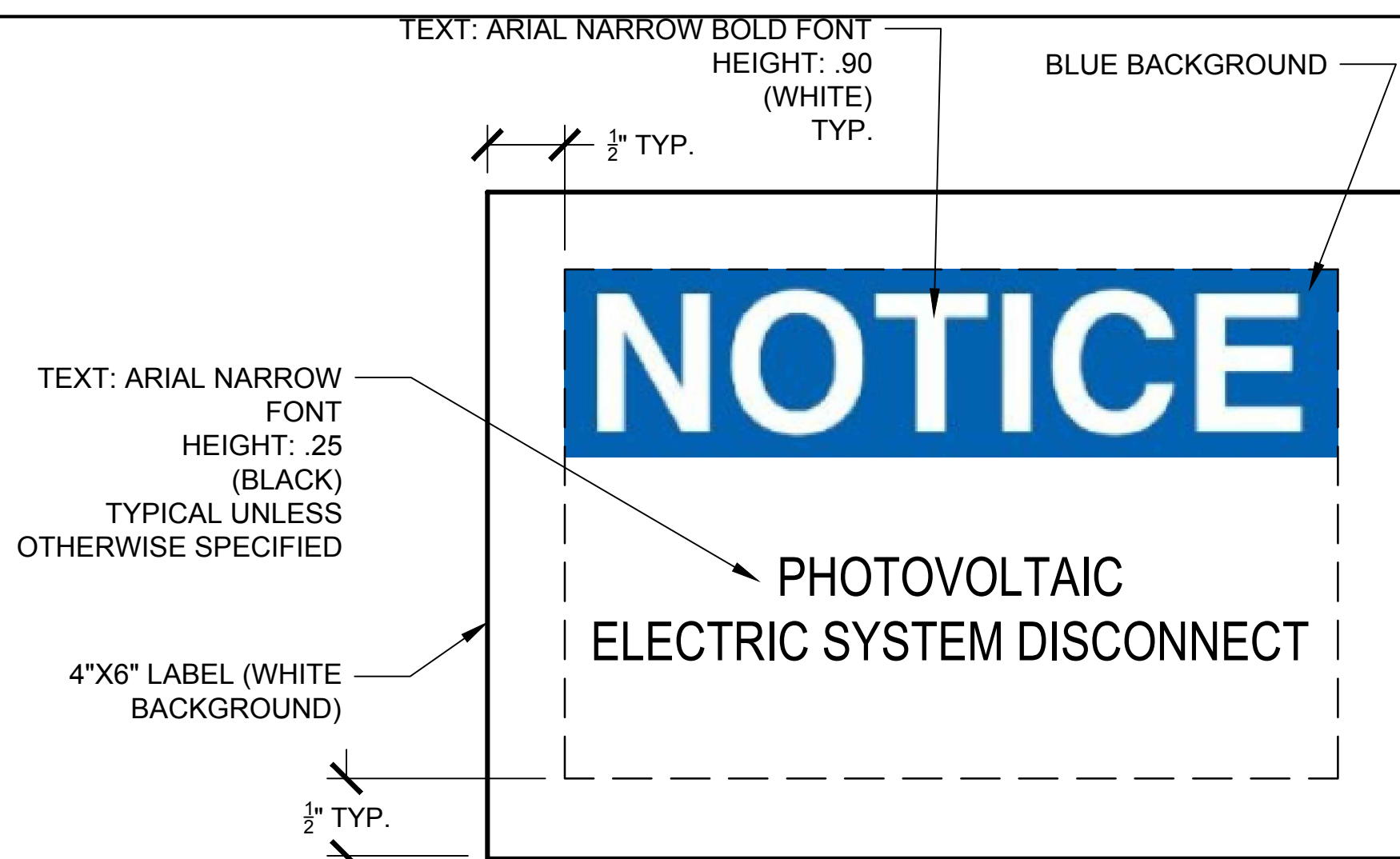
MISCELLANEOUS DETAILS SHEET 5

ENGINEER: EDGAR PUESAN	DRAWN BY: EDGAR PUESAN
PROJECT NO. 1620400	SHEET NO. E-405
CREATION DATE 10/04/2016	
SCALE AS NOTED	

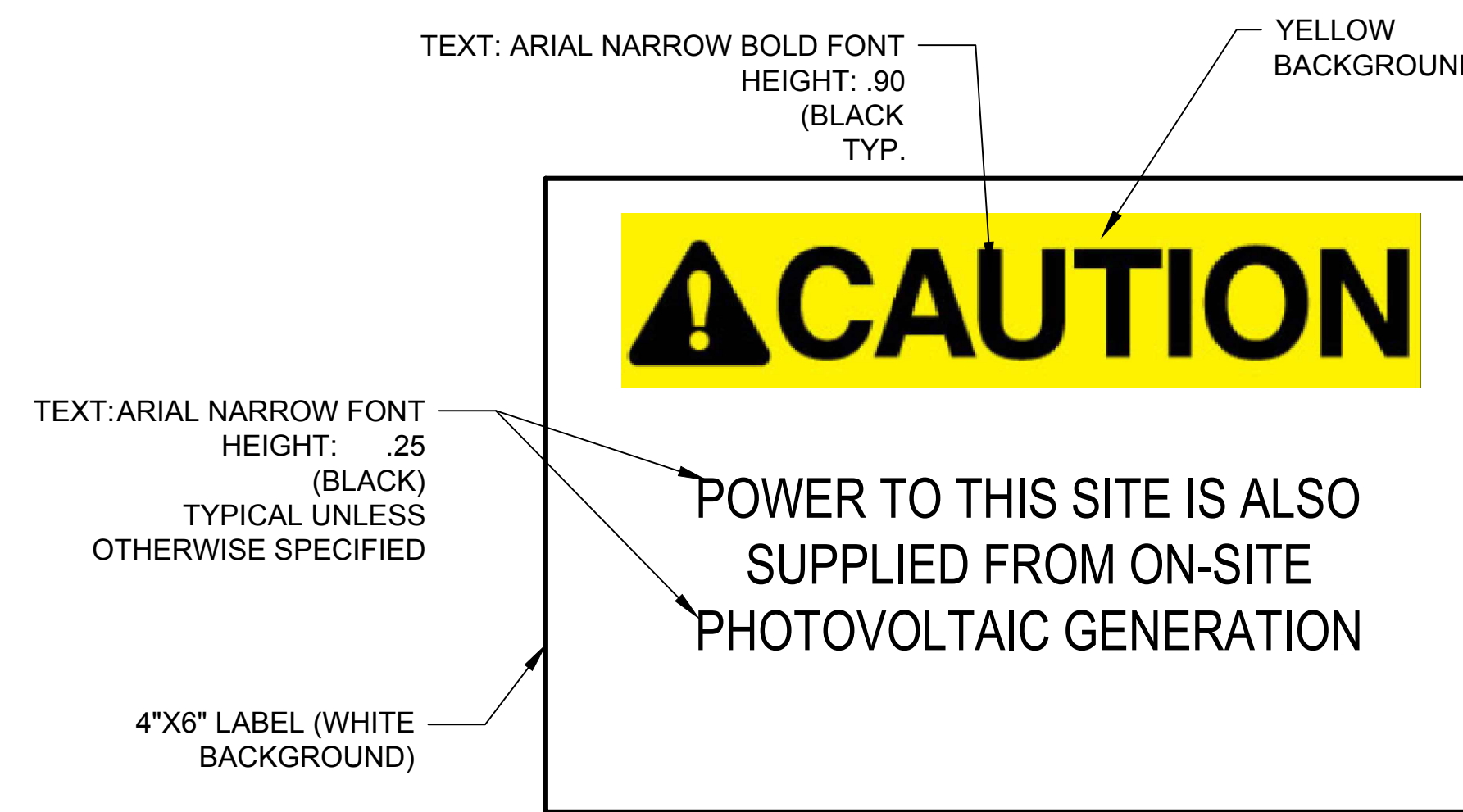
1 UTILITY AND CUSTOMER POLE LAYOUT
E-405 SCALE: NTS



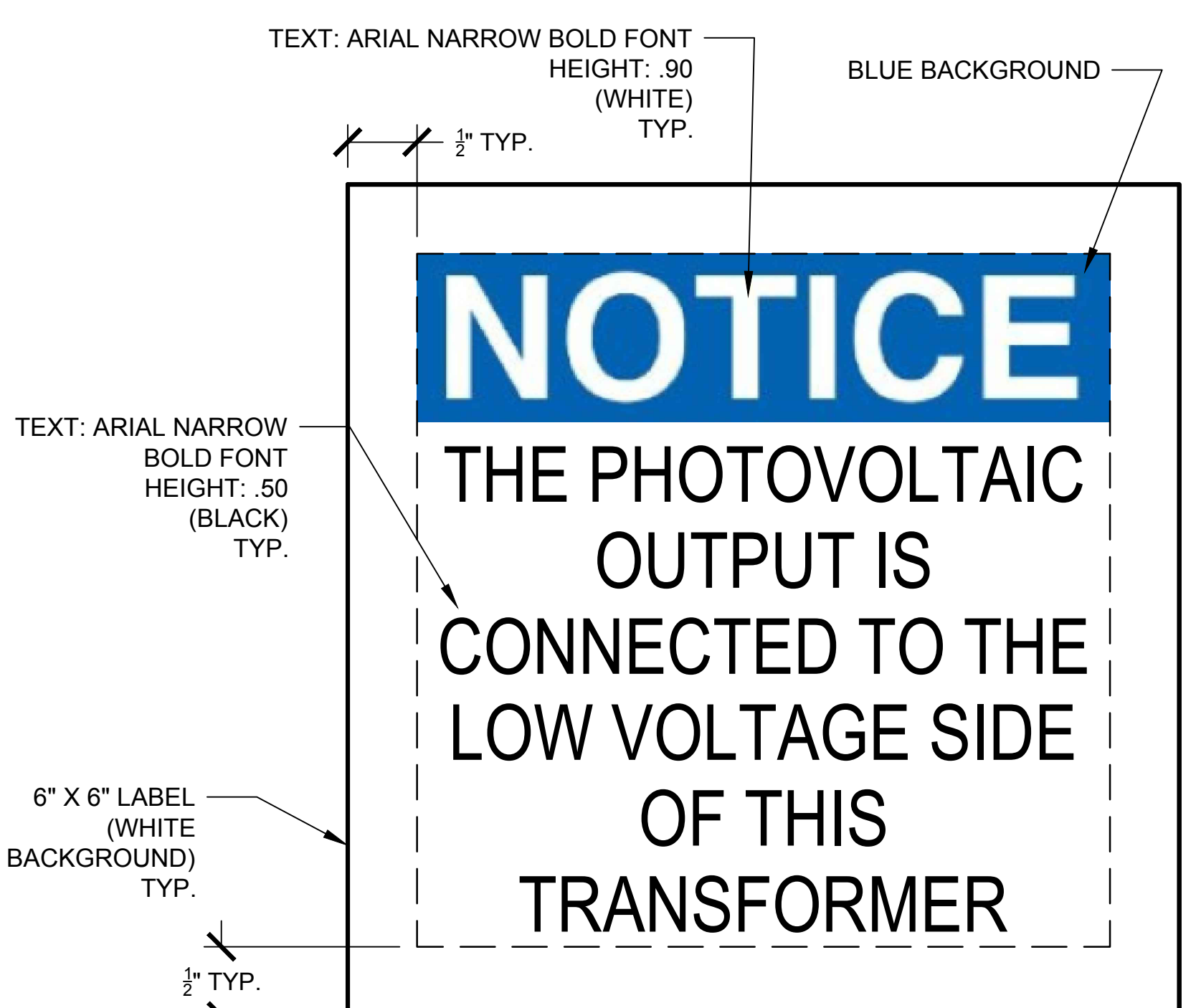
TO BE POSTED AT MEDIUM VOLTAGE TRANSFORMER & INVERTER ON THE LOW VOLTAGE SIDE



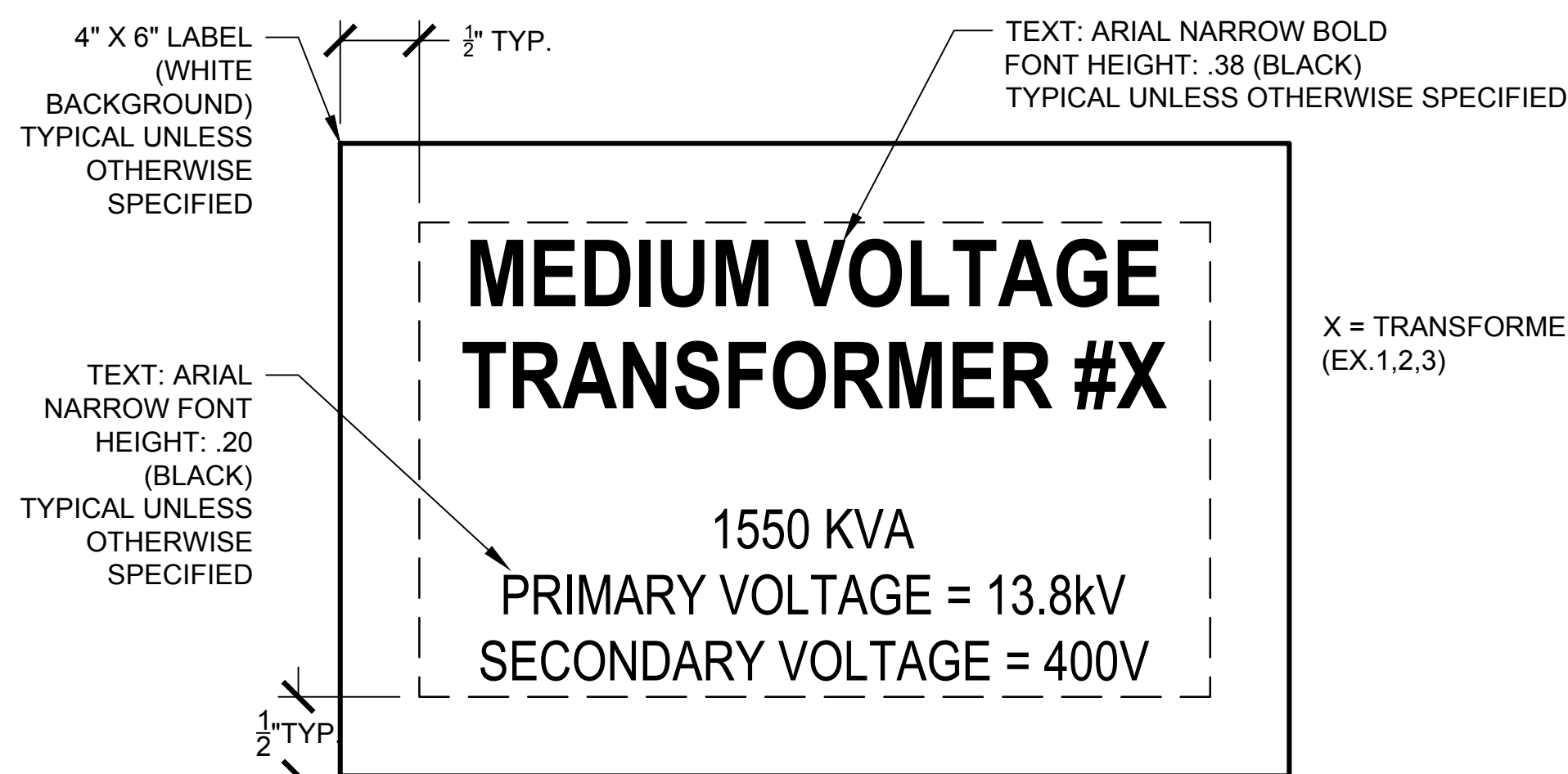
TO BE POSTED AT MAIN SERVICE DISCONNECT



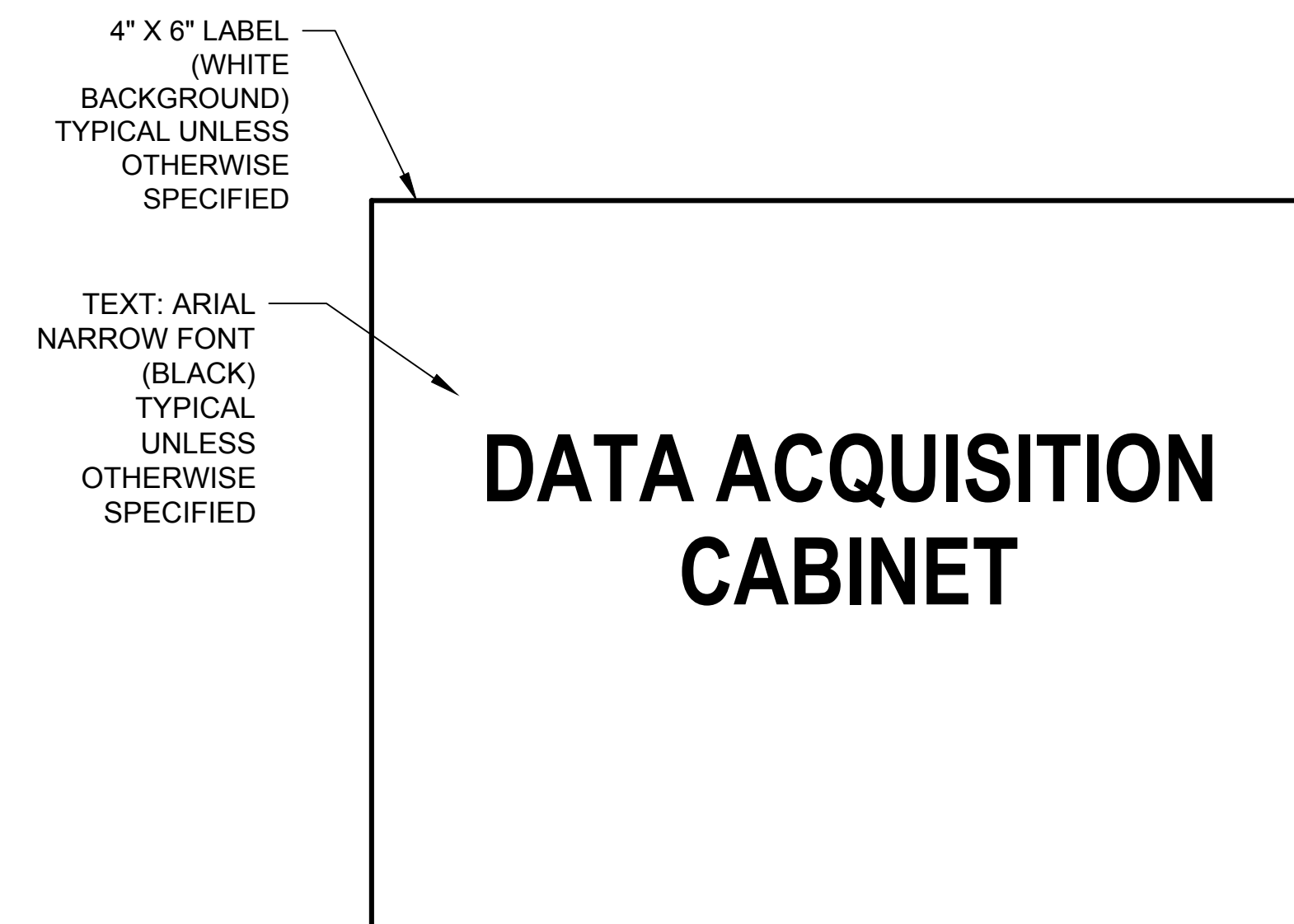
TO BE POSTED AT UTILITY METER



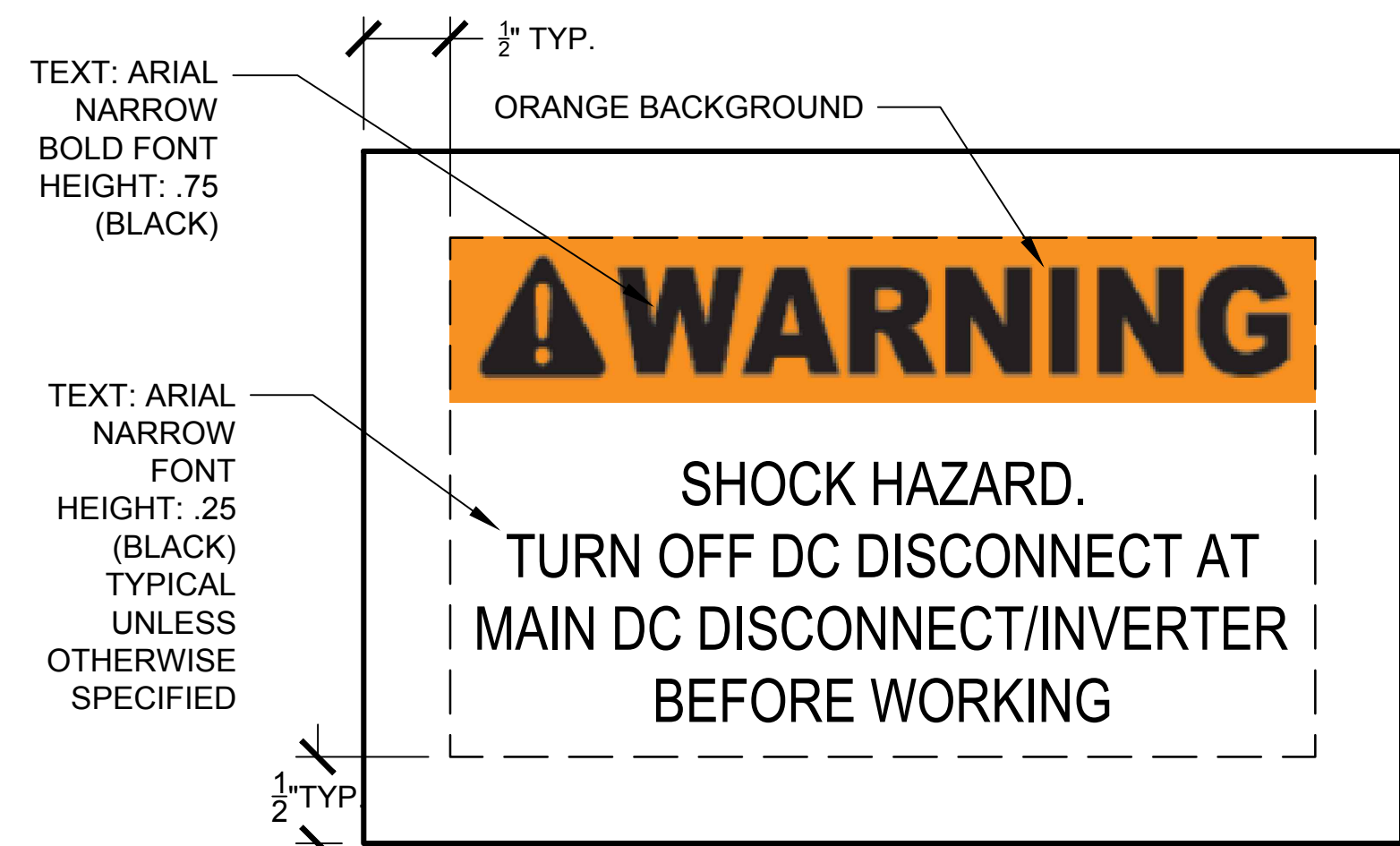
TO BE POSTED AT TRANSFORMER



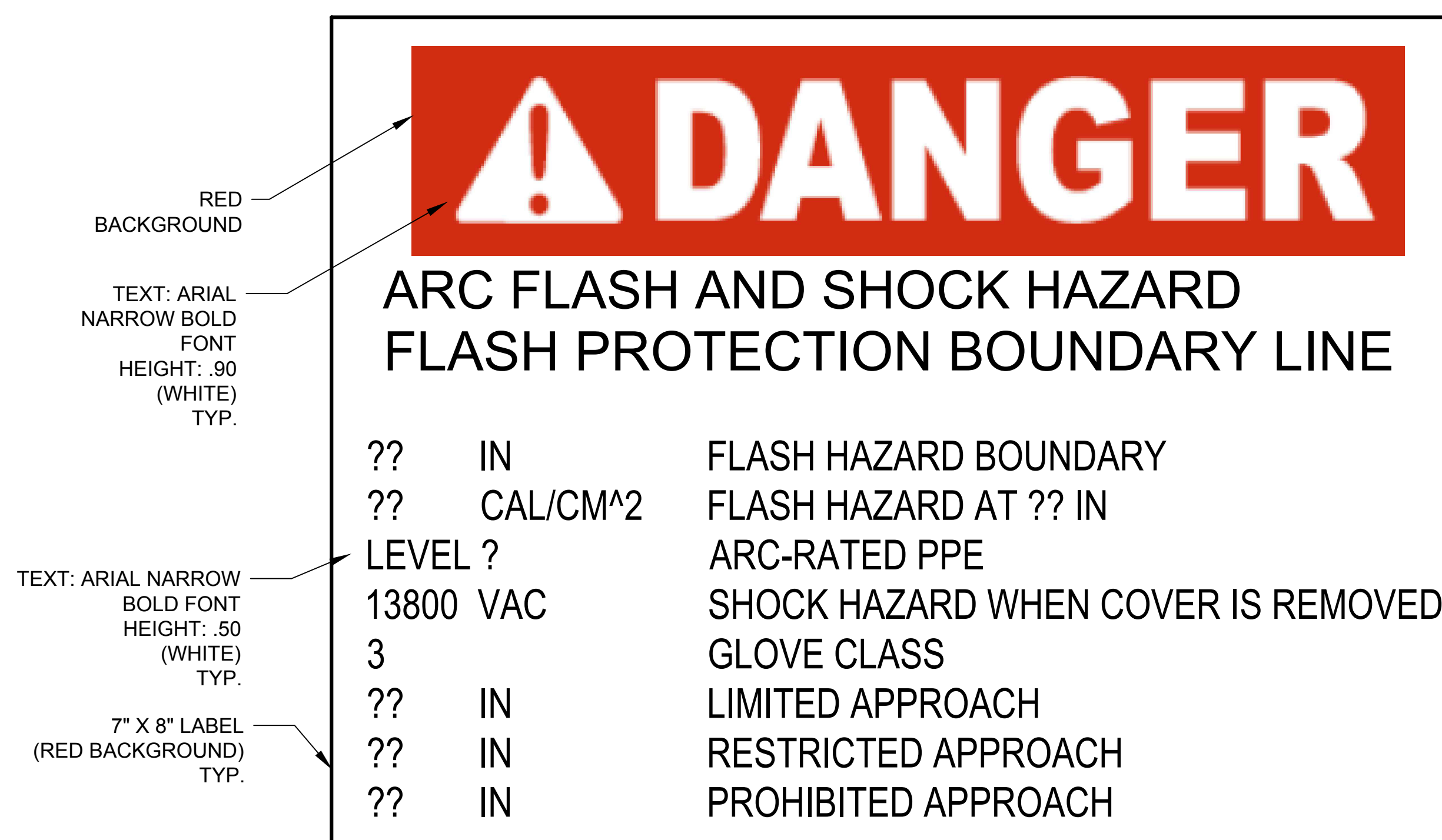
TO BE POSTED AT THE TRANSFORMERS



TO BE POSTED AT THE DAS CABINET

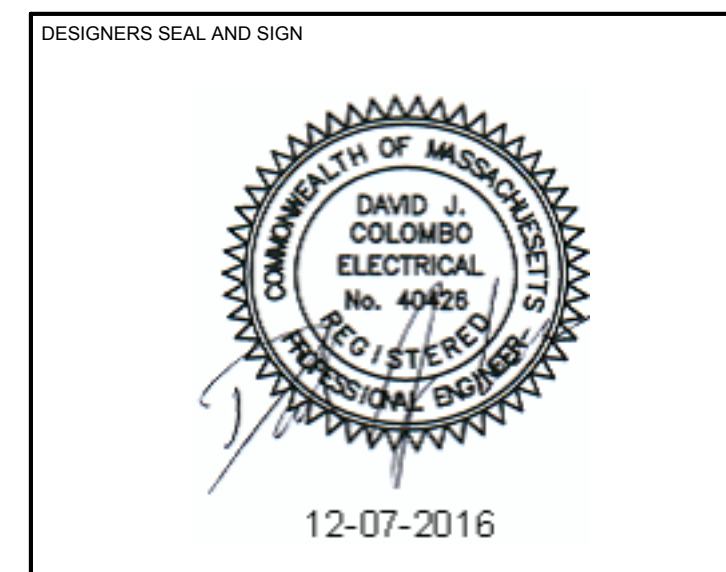


TO BE POSTED AT ALL COMBINER BOXES



TO BE POSTED AT ALL EQUIPMENT, WAITING FOR ARC FLASH & SHOCK HAZARD ANALYSIS

Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP



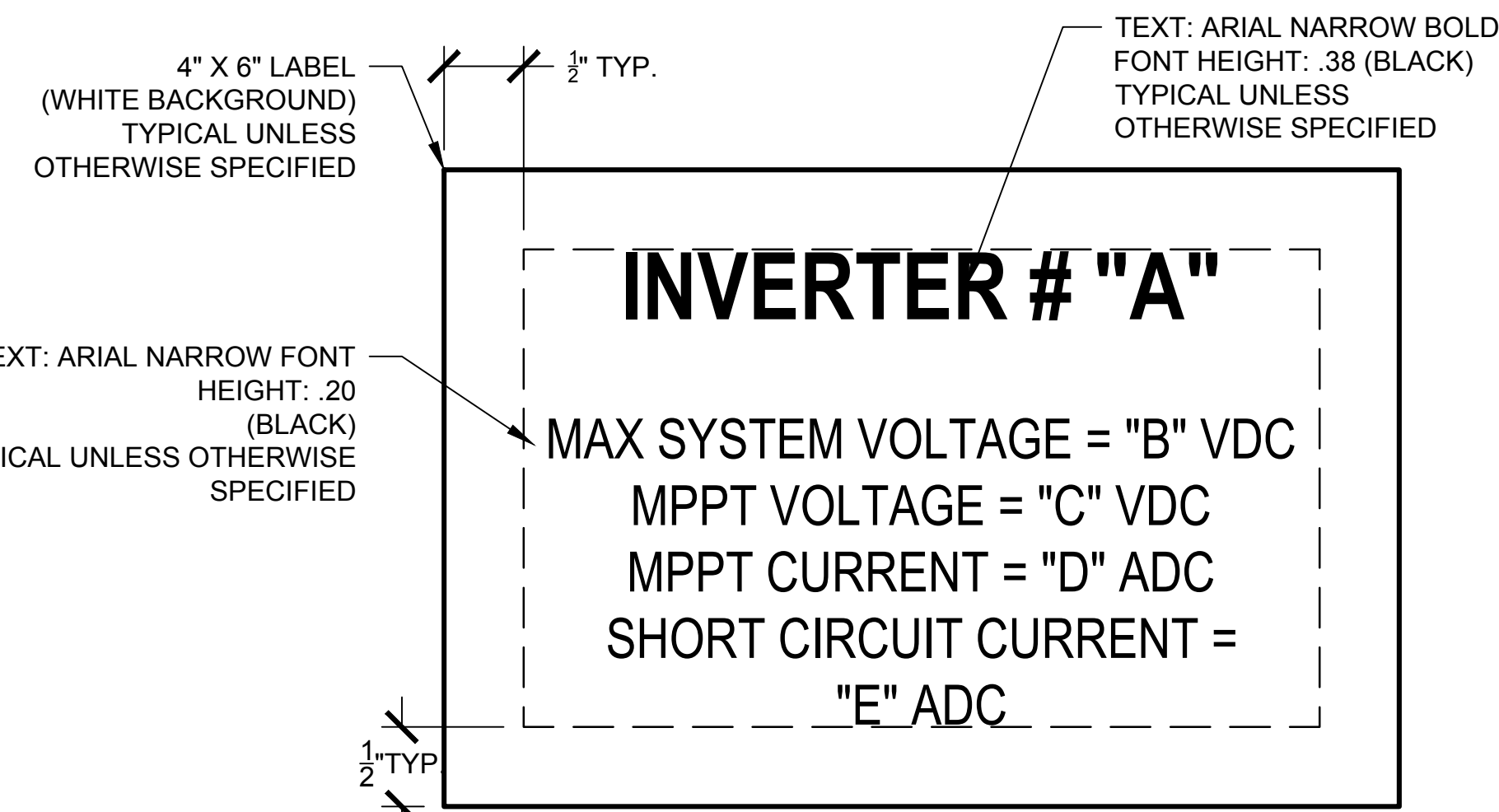
SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS
 SHUTESBURY GROUND MOUNT
 PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

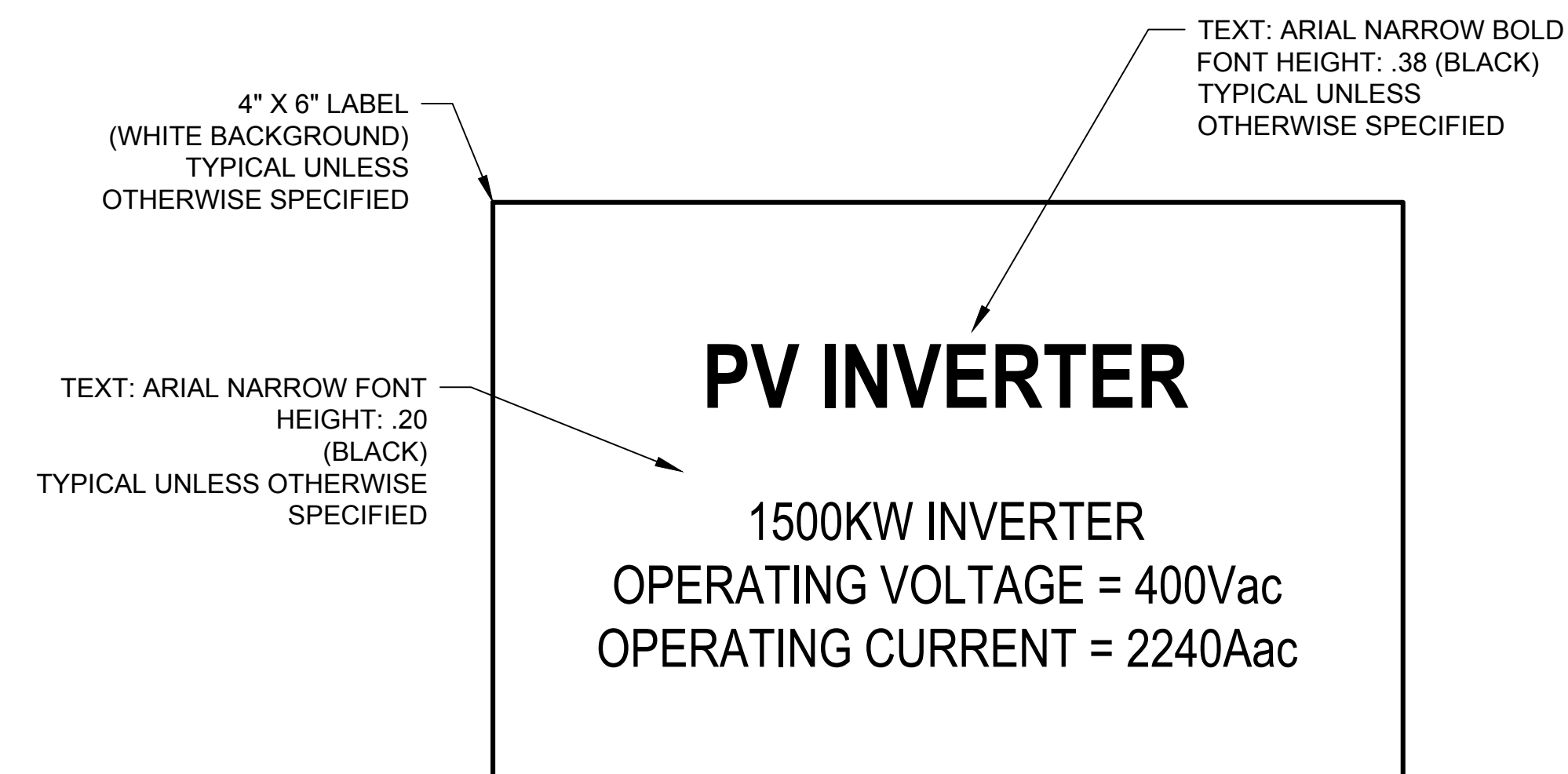
SHEET TITLE
 WARNING LABELS SHEET 1

ENGINEER: EDGAR PUESAN	DRAWN BY: EDGAR PUESAN
PROJECT NO. 1620400	SHEET NO. E-500
CREATION DATE 10/04/2016	
SCALE AS NOTED	

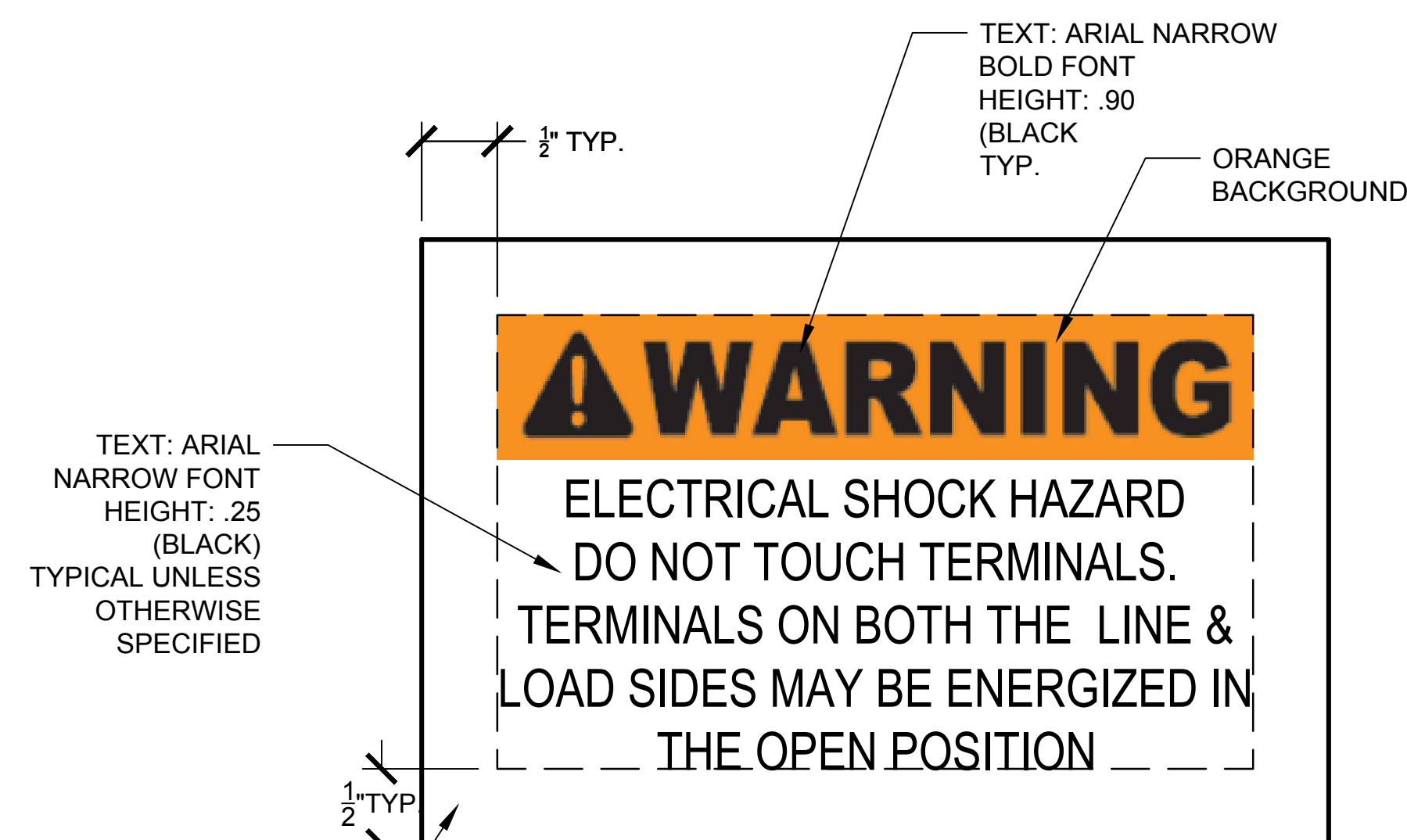


TO BE POSTED AT THE INVERTERS PER NEC 690.53

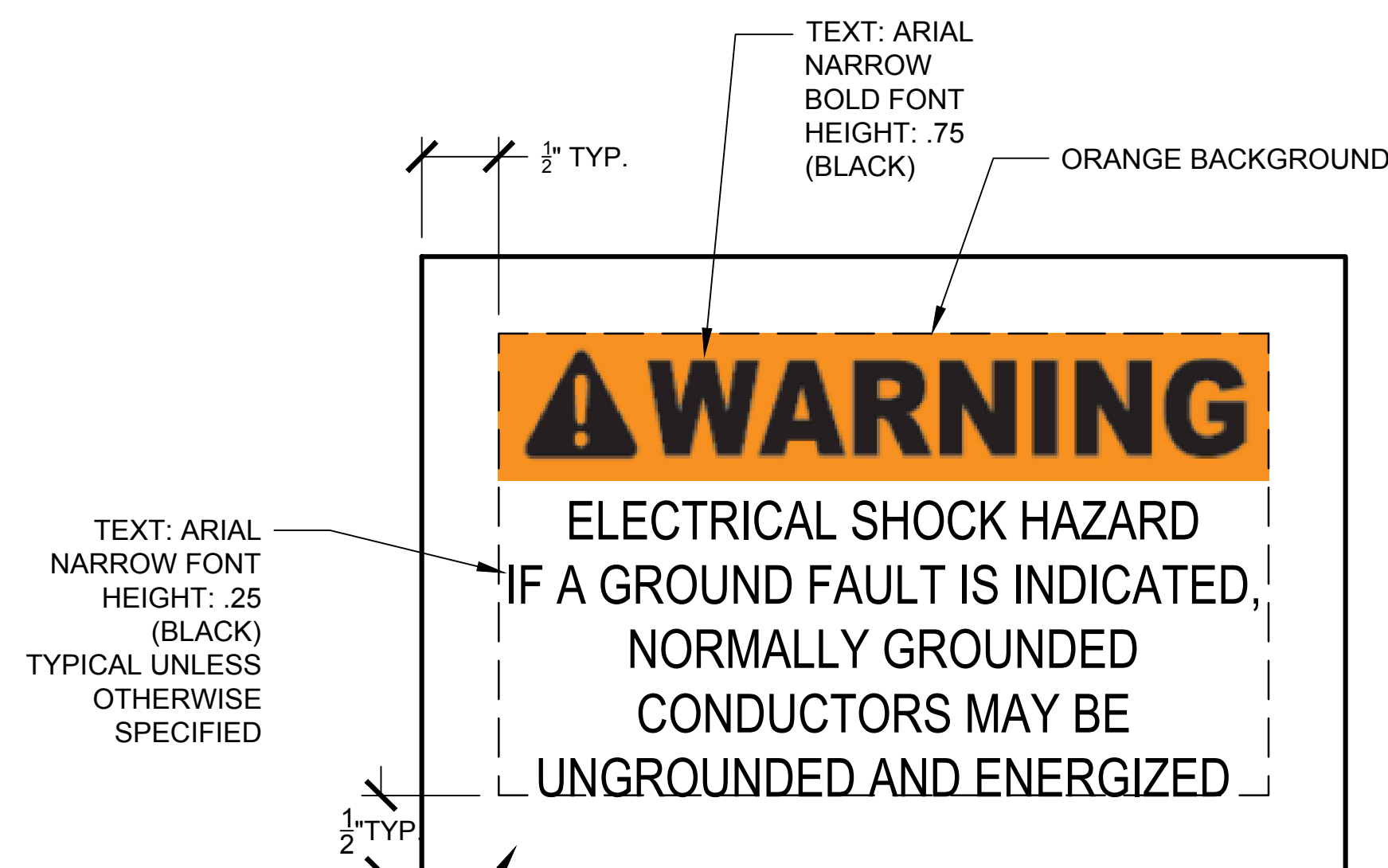
INVERTER TABLE				
(A)	VOC (B)	VNOM (C)	INOM (D)	ISC (E)
INVERTER 1	998.80	725.80	3226.25	3425.68
INVERTER 2	998.80	725.80	3448.75	3661.88
INVERTER 3	998.80	725.80	3471	3685.5



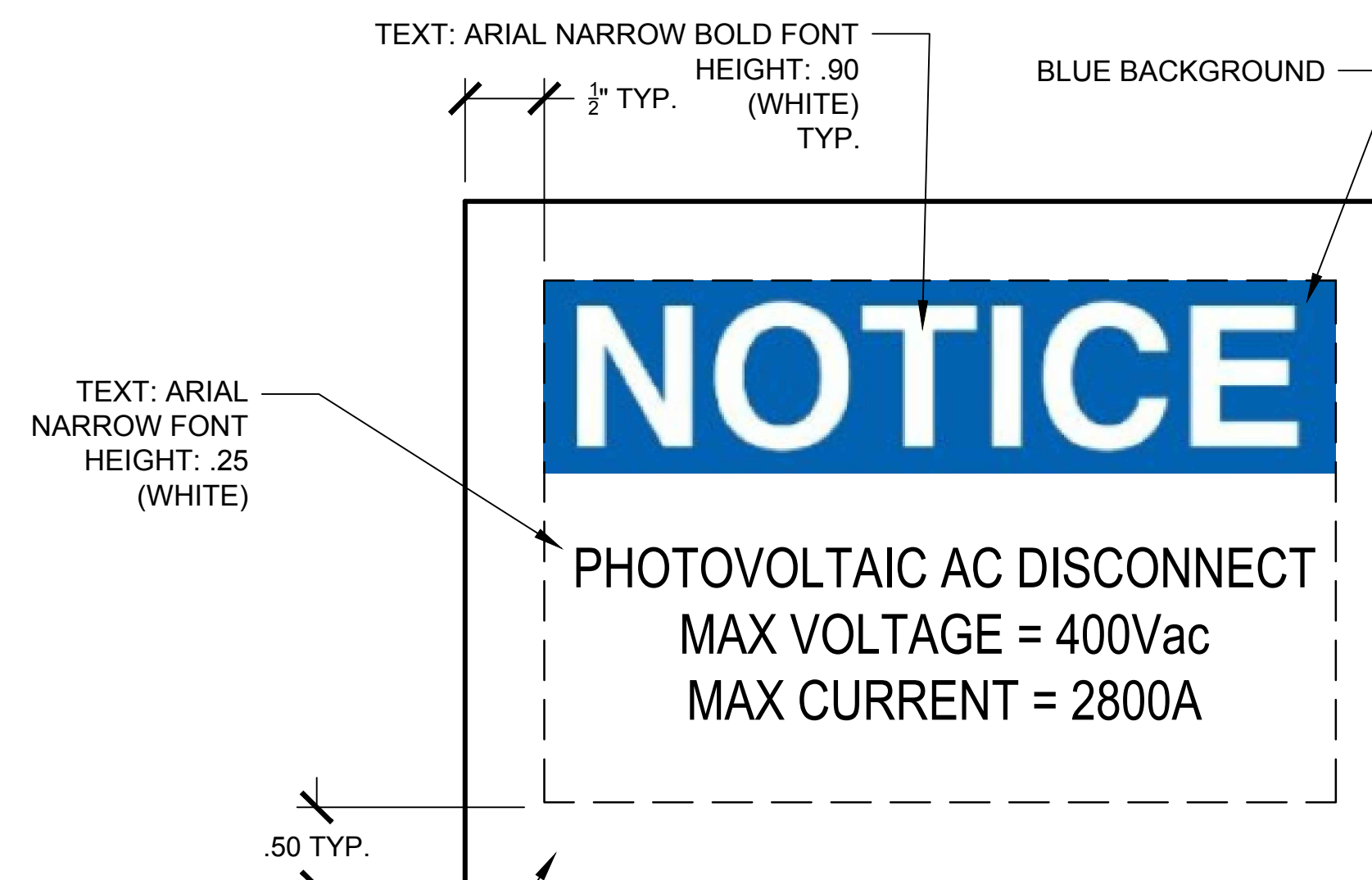
TO BE POSTED AT THE INVERTERS



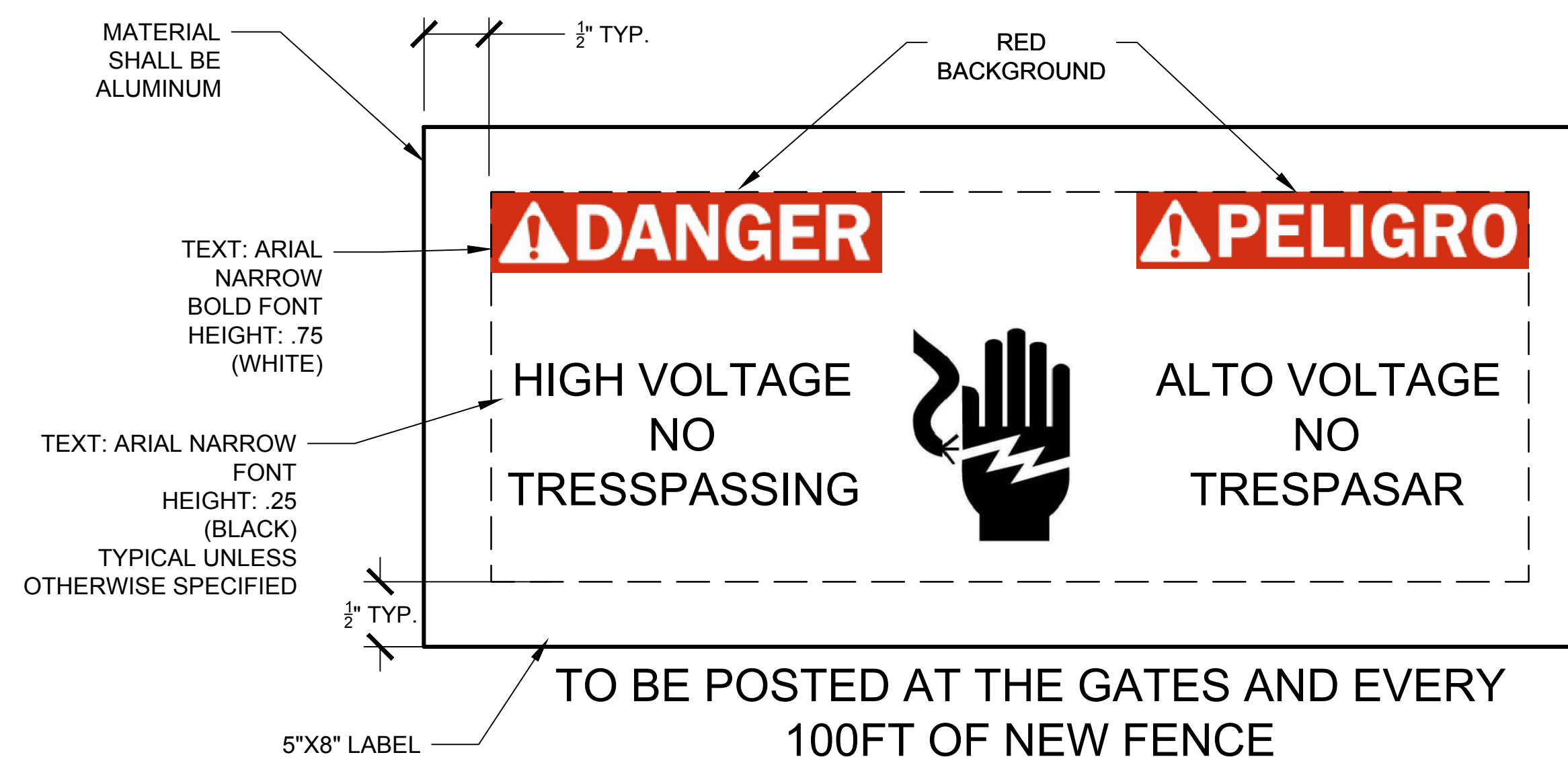
TO BE POSTED ON INVERTER DC, INVERTER AC, MAIN SERVICE DISCONNECT AND COMBINERS PER NEC 690.17 (E)



TO BE POSTED ON INVERTERS PER NEC 690.05 (C)

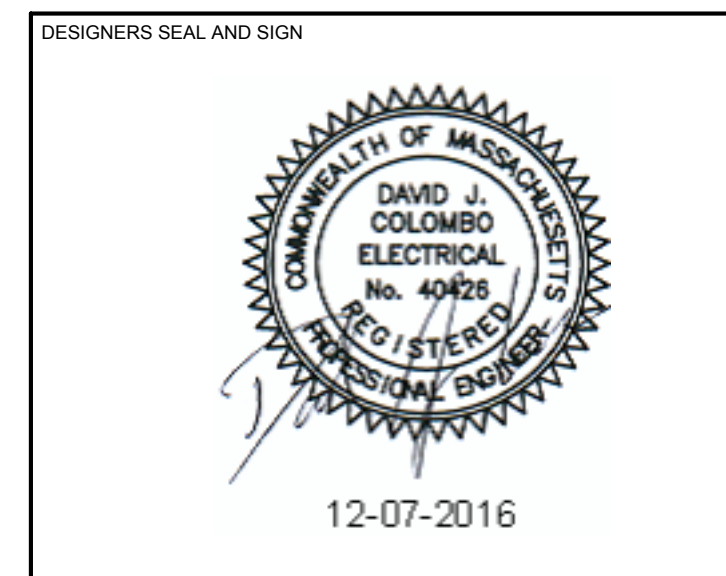


TO BE POSTED AT INVERTERS' AC DISCONNECT



TO BE POSTED AT THE GATES AND EVERY 100FT OF NEW FENCE

Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP



SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS

SHUTESBURY GROUND MOUNT

PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

SHEET TITLE

WARNING LABELS SHEET 2

ENGINEER: EDGAR PUESAN	DRAWN BY: EDGAR PUESAN
PROJECT NO. 1620400	SHEET NO. E-501
CREATION DATE 10/04/2016	
SCALE AS NOTED	

